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TABLE OF CONTENTS.

Editorial: PAGE.

The Money Question and the Practical Man... 159

The Bursting of Air-Brake Hose ... *A. M. Waitt* **161**

The Use of Gutta-Percha in the United States ... *John M. Armstrong* **164**

Recent English Decisions in India-Rubber Law Cases ... **167**

New Goods and Specialties (*Illustrated*):

An Unbreakable Vulcanite Piston ... 169
Halowell's Self Closing Spray Pipe ... 169
A Stamp and Envelope Moistener ... 169
The Palmer Electric Vulcanizer ... 169
The Vim Single Tube Tire ... 169
The Perfect Syringe ... 170
The Chicago Electric Hose ... 170
The Lycoming Girard ... 170
Child's Rain Maker ... 170
The Eureka Repair Tool ... 170
Bailey's Latest ... 171
A New Hydraulic Packing ... 171
New Mackintosh Lining ... 171
The Combination Detachable Pneumatic Tire, 49 ... 171
The World Sprinkler ... 172
Lawton's Emergency Strap ... 172
The Crazy Water Whip ... 172

Collapse of the So-called Iroquois Rubber Co ... **173**

Progress Among the New Rubber Factories ... **175**

The Fortieth Anniversary of a Rubber Man. **178**

With portrait of Theodore E. Studley.

Interviews with Successful Exporters ... **180**

Questions and Answers in the Rubber Trade ... **182**

Brief Abstracts of Recent Rubber Patents ... **184**

Passing Comments on the Rubber Trade ... **185**

Miscellaneous:

Non-Blooming Sulphur ... 163
American Mackintoshes in Demand ... 163
A Woonsocket Suggestion ... 163
New Things in Rubber in England ... 166
Elasticity of Rubber not Permanent ... 166
Rubber in Wringer Rolls ... 168
Burnt Rubber Absorbs Gold ... 168
A Traveling Man on Brands ... 168
From Norfolk, Virginia ... 172
Rubber-Lined Vamps and Soles ... 172
Pictorial Advertising ... 176
Failure in the Baltimore Trade ... 176
New Process for Waterproofing ... 176
May Control the Manufacture of Single-Tube Tires ... 177
The Hodgman Rubber Co. in Chicago ... 177
Death of John F. Holt (*With Portrait*) ... 179
Mr. Banigan and the United States Rubber Co ... 181
A Cut Catalogue ... 181
Tires in St. Louis ... 181
The O'Brien Watertight Foothold ... 183
Bicycle Advice by "Quad" ... 183
Balata from French Guiana ... 186

Trade and Personal Notes ... **187**

Review of the India-Rubber Market ... **188**

THE MONEY QUESTION AND THE PRACTICAL MAN.

THE March number of *The Engineering Magazine* contains two important articles which are designed to present the money question from the standpoint of the practical man. The first is written by Mr. John R. Dunlap, of THE INDIA RUBBER WORLD, and in it he has much to say that will be read with interest and profit in the rubber trade. After reviewing the effects of the panic, he says:

"The panic of 1893 was purely and wholly a financial one. It was born of the most astonishing array of insane legislation that has ever been witnessed in the history of any civilized people, and that this may be clearly comprehended it is worth while to reproduce here an extract from a speech by Prof. J. Lawrence Loughlin, delivered in Chicago in October, 1894. The status of our public finance has never anywhere been more concisely presented, or more appropriately characterized.

"To illustrate the heterogeneous character of our currency, he presented the following official statement showing its component parts on October 1, 1894, which will apply substantially to the present date:

	Coined or Issued.	In treasury.	In circulation.
Gold coin	$579,728,587	$79,602,339	$500,126,248
Gold certificates	64,845,699	55,260	64,790,439
Silver dollars	421,176,408	366,900,165	54,276,243
Subsidiary silver	75,054,481	16,809,713	58,244,768
Silver certificates	339,676,504	9,155,785	330,520,719
Treasury notes (1890)	151,609,267	30,113,893	121,495,374
U. S. notes (greenbacks)	346,681,016	79,397,535	267,283,481
Currency certificates	56,305,000	550,000	55,755,000
National bank notes	207,564,458	5,017,748	202,546,710
Total	$2,242,641,420	$587,602,438	$1,655,038,982

"Commenting upon this exhibit, he said: 'We have here a dime museum of finance,—"the greatest aggregation of curiosities ever before exhibited under one canvas in the world." There are nine different and confusing kinds of money,— two kinds of gold money, four kinds of silver money, and three kinds of paper money. The sum total of the four kinds of silver money amounts to about the same as the sum of the two kinds of gold money. Briefly, about 35 per cent. is gold, 35 per cent. is silver, and 30 per cent. is paper. . . . If anything should make us pause and deliberate on the ways of regulating our monetary system, it would be that the loud-voiced, blatant demagogue is allowed to have unimpeded influence in regulating such an intricate mechanism as this.'

"This language seems almost like humor and ribaldry, but its every word is sober truth, and in no other form of expression can the situation be so fittingly described.

"Back in the summer of '93, when agitation for the repeal of the Sherman Silver Bill was going on, there were thousands of intelligent men who believed that if we could stop the Government's monthly purchases of silver the trouble would be over. But experience soon demonstrated that in reality the silver question constituted only one phase of the problem. Immediately after the repeal of the Sherman Bill the drain of gold from the Treasury set in afresh, and one bond sale followed another in quick succession without checking the demand for redemption of the Government's fiat money. Thus has arisen the present and growing demand for the retirement of the greenbacks. It is obviously necessary that these notes shall be retired, and we can never hope for stability in our financial affairs until they are safely out of the way,—until the government

'goes out of the banking business' and transfers to the banks the burden of carrying a gold reserve and supplying the gold that may be needed for export. But well-informed men see clearly enough that even this would not cure all our ills. The trouble lies yet deeper. Our banking system is not only imperfect and inadequate to the proper conduct of the business of our people, but it is crude, old-fashioned, and far behind the science of modern banking, as practised in every other civilized country. What we need, and what we must have before we can enter safely upon that era of splendid prosperity which surely awaits us, is, first, a simple, safe, and elastic system of national bank currency, which can be readily issued or retired by the banks in response to the varying demands of trade,—and which will be adequate in volume to supply the place of the greenbacks and Treasury notes; and, second, such an amendment of the banking laws as will permit national banks, under proper restrictions, to establish branches in small towns and thinly settled districts throughout the country, to afford to our people the banking facilities which are necessary to the expeditious and profitable conduct of business.

"Immediately the question arises, How is this reform to be accomplished? There is but one answer. It must come through the education of our people, and it can come in no other way. We live under a popular government, and as the people think, Congress will vote. Not until the country has declared itself in unmistakable terms can we hope for any adequate legislation in Washington; and, meanwhile, we must rely upon demonstrating to all the world the great wealth, the splendid resources, and the loyal patriotism of our people,—which have happily been so conspicuously proved in the recent public sale of government bonds.

"Reasoning thus, it has seemed obvious to me that the surest and speediest method for accomplishing the end desired, must be through *the education of the leaders* of the people,—the proprietors, heads of concerns, chiefs of departments, superintendents, managers, and active men of affairs generally, who employ large numbers of men and who hold the confidence of the voters. To teach sound principles of finance is therefore a duty which rests, not upon our representatives in Congress, or some special set of men who comprehend the whole science of finance, but it rests equally upon all men of intelligence and influence. It should find expression in private conversation, in business correspondence, through the columns of the newspaper press, in the pages of the magazines and reviews, especially through the medium of commercial exchanges, boards of trade, and chambers of commerce,—and more important than all else, the demand for a sound currency and a civilized system of banking should be made so manifest at every political convention between now and next fall, that when the voters come to the polls for the presidential election in November next, there shall be absolutely no mistake as to the demand of the people of the United States for the best money and the best banking system that the world affords.

"And now I want to go beyond the ordinary bounds of a magazine article for the purpose of saying, that the most valuable, the most complete, and the most convincing contribution that has yet been made to the literature of the money question, is the incomparable little volume by Mr. Horace White, entitled 'Money and Banking,' which has recently been published by Ginn & Co, Boston. From cover to cover it deals in essential facts, rather than theories; and using the familiar events of our whole financial history to illustrate the obvious principles of sound finance, it makes the whole subject so clear that no reasonable man can possibly go astray.

"In this little book, in exposing the fundamental fallacy of money issued by a government, Mr. White declares that 'the greatest objection of all to fiat money is that it teaches people to believe lies. It creates the belief that the government can make money—that is, real, not representative money—than which a more damaging lie never gained lodgment in the human brain.' This is true, but it is an incomplete statement. A still more damaging influence which must be charged against fiat money, is that it teaches people to believe that the privilege of issuing money is a very valuable one; that the banks are anxious to secure and control it for their private profit; and that the Government should protect the people against the 'soulless money changers' who design to charge a profit for the use of what should be 'the people's money.' Of all the stupid fallacies that have ever gained currency surely this is the most senseless and the most damaging.

"As a rule a bank's capital and surplus are about represented by the cash reserve which is necessary to a safe business. Hence it follows that banking income and banking profits are derived almost wholly from deposits, which are loaned-out at interest. In proof of this I need only cite the fact that the aggregate deposits of our national, state, and savings banks at present average about $4,250,000,000, while the national bank notes now in circulation amount to less than $200,000,000. If the greenbacks ($346,600,000) and the Treasury notes ($152,600,000) were immediately converted into national bank currency, the aggregate of bank circulation would still be less than $700,000,000,—or practically one sixth part of the vast sums of money which the people gladly commit to the care of the bankers, to be used for their individual profit, in return for the security, the accommodation, and the convenience which the banks afford. This is so simple and so obvious a demonstration of the source of banking profits that one marvels at the widespread popular notion that bankers are eager for the privilege of issuing money, and that such a privilege should be denied them. The truth is that for years past our national bank circulation has been declining in volume because it is unprofitable to the banks; and under any possible or approved system, the necessary outlay of capital to provide security for the notes, and the cost of supervision and insurance against loss, must make the net profit on bank circulation a very slender one at best.

"But the issue of money is a natural and indispensable feature of a sound banking system, for the essential reason

(*Continued on page 177.*)

THE BURSTING OF AIR-BRAKE HOSE.

*By A. M. Waitt (Cleveland, Ohio).**

I HAVE endeavored to make a special study of the extent of air-hose bursting, and the cause and this investigation has brought to light many valuable facts. As the scrap-pile is a good place to study the weak points in car-equipment, so the pile of defective hose is a good point from which to glean facts as to air-hose. During the past four months, it has been the writer's privilege to examine many hundreds of lengths of burst and worn air-brake hose, and to investigate the causes of some of the wrecks occurring on the lines of several roads. As a result of this work, the vital importance of careful inspection and maintenance of air-hose has been deeply impressed upon my mind. I doubt much if there are many railroad companies giving this feature even a small portion of the attention it deserves. The experience on the Lake Shore and Michigan Southern surely is no exception to the general rule, and if, with ordinarily careful inspection, and well-instructed engineers and properly equipped locomotives, we have had air hose burst in trains, not simply by tens, but by fifties in a month, it is reasonably safe to assume that other companies, using considerable numbers of air-brake cars, are having, or have had, a somewhat similar experience. . . . . I venture to predict that if general investigation on these lines is made, it will develop a state of things existing that is now little dreamed of.

On the road with which the writer is connected, it disclosed the fact that we were allowing thousands of lengths of air-hose to run on our own and foreign cars that careful inspection would clearly show unsafe under seventy pounds pressure for any length of time. Car department officials are allowing such worn-out, cracked, and chafed hose to run in trains on most of our roads to-day, without question, and are thereby jeopardizing hundreds of lives and millions of dollars' worth of property.

The natural question arises, "What can we do to remedy this condition of things?" It is first necessary to enforce a careful and rigid inspection of all air-hose, not simply being satisfied with a casual glance, allowing hose that is kinked up in a dummy-coupling to be examined without unhanging it, but in all cases examining the hose when hanging extended, free from kinks, either when hung in a properly constructed and properly located dummy-coupling, or when coupled to hose on the next car.

A careful examination will show whether hose is old, with the outer rubber coating full of deep cracks; it will show if it has been kinked and has the outer rubber cracked, exposing the canvas; it will show, if it is dated, whether it has outlived its safe life limit; it will show if it is cut or is badly chafed, exposing the canvas. All of the above defects are dangerous and render hose liable—yes, and likely —soon to fail by bursting. Some lessons here may be learned from the hose-manufacturers. I am told that the safety of hose depends upon keeping moisture away from the canvas or duck which forms an important part in its manufacture. As soon as water reaches this canvas, either from the inside or outside, it will work its way along like an auger, separating the rubber from its canvas foundation and at the first minute opening working through to the next course of canvas, and so on until the strength of the hose is so reduced that the 70 pounds pressure which is almost constantly on it forces its way through. In such a case if ten or a dozen cars at the head end of a train are air-brake cars, the forward part of the train will stop very suddenly under the emergency application, the slack between cars in the rear will be suddenly taken up, and any flat-cars, or lightly-constructed cars of any class, and many times even good, strong cars, will be derailed, broken in two, or piled up promiscuously one on the other, entailing hundreds of thousands of dollars' loss. All this may come from an exposure of the canvas. All air-hose should be ordered with ends capped. This capping is a thin ring of rubber which is made up in the hose, and which effectually covers and seals the canvas at each end of the hose and keeps out all moisture.

Manufacturers will only guarantee the best air-hose for from two to two and a half years in freight service. A careful record kept by the Lake Shore and Michigan Southern railway for the past two years, shows the highest average life of dated hose removed, from its own and from foreign cars, as 25 months; in a few instances one make of hose showed a life of over 36 months. If the makers can only guarantee 30 months at the outside, and as hose failing on a train in service means such danger, can we afford to permit hose to continue running till it bursts, regardless of age? I believe that good practice will warrant the removal and condemning of most air-hose which has been in service over thirty months, and such is the practice on the road with which I am connected. This renewal is made on both domestic and foreign cars. One exception is made in condemning of such hose removed: if it has the rubber in good condition and free from cracks, we subject it to a test under 100 pounds pressure for a short interval, say one or two minutes; if showing no sign of weakness it is stenciled, in half-inch white letters, "100 lbs. test—O. K.," with the shop-mark and date. Such tested hose we permit to be used again for a period of six months. It is occasionally found that such will fail in service within a few days after the second application, so that it is an open question as to the advisability of allowing a hose to be used that is over 30 months old. If some manufacturers can make hose that they can guarantee for more than this time, they should so mark it, plainly, so that it may carry its own guarantee clearly stamped on it. In such cases the removal of the hose could be governed by the guaranteed life.

* The author of this paper is the general master car-builder of the Lake Shore and Michigan Central railway. It was read before the Western Railway Club (Chicago) at its November meeting and discussed at length at the December and January meeting. Room can be found here for only a portion of the paper.—THE EDITOR.

The feature of removal of hose, when it has given a fair length of service, necessitates a provision by the manufacturers for marking all air-hose furnished by them in a clear and permanent manner, the marks being so located, and of such size and color, as to be easily read by car inspectors. Such markings should include: (1) the maker's trade mark; (2) initials or trade-mark of railway for whom the hose is made; (3) mark showing date of manufacture (month and year); (4) removal date-marks for showing when hose is applied and removed; and (5) time-guarantee mark.

Having all hose properly marked and dated when first applied, it becomes greatly to the interest of every railway company to keep a careful record* of all hose removed from its own and foreign cars, such record giving full particulars as to maker's name, date of manufacture, guarantee, date of application and removal, together with cause of removal; from such record of the hose removed, a proper check can be made on each manufacturer, in connection with his guarantee, and in addition, in a few years' time, it will be seen which manufacturers make good hose, and which do not. The data obtained will enable our purchasing agents to drop the poorer makers, and will on the whole produce a general improvement in the quality of the hose made and used.

It is very difficult to lay down any tests which are reliable, upon which to form a judgment as to the advisability of adopting any one make of hose above another. Some roads have decided on the qualifications of hose by an extended kinking test, by means of simple mechanism for rapid continuous bending and straightening of sample hose until it breaks or cracks. I question the value of results so obtained. Hose rarely fails in service as a direct result of kinking, and as the kinking test is entirely different from the conditions produced in service, it seems a somewhat strange and unreasonable test to require. A personal examination of many hundred pieces of burst and condemned hose, during the past few months, shows that almost without exception air-hose fails from the effect of heat and cold, and age, causing the outside and inside coating of rubber to become hard and brittle, producing cracks which permit moisture to get to the canvas or duck foundation of the hose, or else the hose fails from the strain from stretching of the rubber and the canvas at the ends where the fittings are forced on.

Where the ends of the hose are not enlarged for the fittings, and it becomes necessary to stretch the rubber at the ends to permit the fittings to be entered, the rubber and canvas soon take a permanent set, thereby losing the original elasticity and strength. Under such conditions, with the material becoming brittle through age, it is found that the hose naturally gives way at or near this over strained point. The extensive examination of burst hose shows conclusively that hose which is not made with enlarged ends, to receive the fitting without straining the rubber, gives out by bursting at or near the ends of the fittings with great frequency. With hose made with ends enlarged about 3/16 inch, for about three inches deep at each end, it is an exception to find it giving out near the ends. When it does give out there, it is generally caused by a roughness or projection on the fitting cutting or tearing the inner rubber lining when pressed on. To avoid this, care should be taken to see that all the fittings are ground off smooth and free from any roughness that can abrade the surface of the rubber.

A great deal has been said about the injurious effect and danger to hose from kinking. I have firmly believed in it myself, but from my investigations I have become convinced that it is a matter of little importance comparatively, so far as causing the bursting or failure of air-hose. I have found very few pieces of hose that have burst at or near the point where they were kinked. The principal deduction to be arrived at from hose which has been kinked long enough to have numerous deep cracks in the outer rubber, exposing the canvas when it is straightened out, is that it is quite old and has outlived a 24 or 30 months guarantee, and is therefore likely soon to give out,—not generally at the point seemingly weakened by the kinking, but probably near the fittings or at some place where it has been slightly chafed, or where there was a flaw in the lapping of the canvas when the hose was wound, in making it.

My conclusions from hose examinations are that, for good results to be obtained, all air-hose should be at least four-ply, made with a finely-woven canvas or duck foundation, with a good thickness of rubber between courses, and with a thick inner and outer lining of pure rubber, the whole being carefully vulcanized. Ends of hose should be capped with about 1-8 inch of pure rubber to protect canvas, and the ends should be enlarged 3-16 inch in diameter for a depth of three inches, the enlarged ends being reënforced so that the resistance to compression will be equal to that of the hose at its smallest section.

It has been frequently shown that large quantities of dust and dirt find their way into the piping, and even to the triple valves, in air-brake cars. To prevent this the air-brake manufacturers have provided a dummy-coupling in which to hang up the hose when not in use, so as to prevent to some extent that trouble. For many years this dummy-coupling was applied to all cars in such a way as to badly kink the hose. This has now been remedied by the present recommended practice of the Master Car-Builders' Association. It has been discovered that the present dummy-coupling is a poor excluder of dust, for it is generally open so wide that the coupling has a $\frac{1}{8}$ inch opening, or more, between the gasket and the dummy, through which large quantities of dust and cinders can enter. The dummy has until very recently been constructed so that it has been easier to hook its pointed end into the opening in the coupling, thereby injuring the rubber gasket, than to hang the hose up as it was properly intended. It has also been found difficult on some roads to compel the proper hanging up of the hose in the dummy coupling. This has occurred possibly from lack of coöperation between the operating department and the mechanical department, or perhaps in too many cases, from negli-

* The system of marking favored by Mr. Waitt in his paper is that illustrated and described under the heading "Standard Marking of Air-Brake Hose" in THE INDIA RUBBER WORLD of December 10, 1895.—THE EDITOR.

gence or appreciation, by the mechanical department, of the need of giving this matter attention. By reason of these difficulties, and the inadequacy of the present devices, one or two prominent railroads have recently ordered the removal of dummy-couplers from their equipment, and have abandoned all effort in the direction of keeping dirt out of their hose and air-brake system. I believe it to be unwise to allow hose to ever hang down loose and swinging, with the tendency to eventually start a crack in the rubber at the end of the top hose fitting, which is the point where the movement concentrates.

Hose will so swing as long as trains are only partially equipped with air, and in fact always on rear cars of train, and on engines when not coupled up in train. In winter the hose, being near the ground, must necessarily fill up with snow, ice, cinders, etc., which must be dug out or thawed out before a proper coupling can be made. In rainy weather cinders and mud will collect in the couplings, especially if they are of the old style. Furthermore, if it is desirable and important to positively exclude dust and dirt from the air-brake pipes and apparatus, as surely is the case, and if it is desirable to have hose hang naturally and free from kinks, I must submit that rather than give up a right practice, because it is hard to make the employés obey instructions, and because the present devices are inadequate, it would be wiser to devise an efficient substitute for the unsatisfactory dummy-coupling that we now have, and obtain one that will exclude dust and dirt, and then maintain a proper discipline among the employés, which will insure the use of the device provided. If it is desirable to lock a switch from a main line of railway when it is left, after using, the officers of a company will hardly consider it a sufficient reason for abandoning the practice of locking them, because it is difficult to make employés do it. Rather they would take means to ascertain all cases of violation of the rules and then administer proper discipline until the rules were carried out.

So I believe, in the interest of good air-brake service, that the rule for hanging up hose should be enforced, and a disregard of it should be dealt with by superintendents in a way to leave no doubt as to their intention to enforce the rule. As our present dummy-coupling is a useless contrivance as a dust-excluder, why cannot a cheap and simple substitute be found by making a malleable casting with a suitable pocket for a standard rubber gasket, and the proper lugs, to enable a hose to be coupled into it in the same manner as into another coupling. Such a device in accordance with the Master Car-Builders' recommended practice, though costing slightly more than the present dummy, would always effectually exclude dust, cinders, and moisture; in fact it would make an air-tight joint, and the desired end of having dirt entirely excluded from the pipes would be accomplished. If this can be done, it ought to be worth a few cents additional cost to each car.

In bringing this paper to a close, I wish to call attention to the necessity of additions to the Master Car-Builders' rules which will permit the removal of air-brake hose on foreign cars when they have reached the safe life limit of 30 months on dated hose, and when, in the case of undated hose, they show the outer rubber casing to be badly checked up, or cracked, or chafed so as to expose the canvas or duck. At present there is no provision for the removal of hose so long as it is not burst, and there should be some understanding as to the condition under which inspectors will be justified in renewing hose, so as to leave little or no risk of a hose bursting on the road with its too-frequent attendant danger of a serious wreck.

NON-BLOOMING SULPHUR.

TO obtain non-blooming vulcanized soft rubber with the comparatively low heat attainable in rubber factories is a difficult matter, and from time to time attempts have been made to improve the processes. Pure sulphur mixed with India-rubber in the ordinary manner combine with one another, but a portion of the sulphur has a tendency to come to the surface as soon as it leaves the vulcanizer. This "blooming" is simply a process of crystallization. A very high heat in the vulcanizer will accomplish the desired end, that is fix the sulphur so it will not come to the surface, but this equipment is expensive and is liable to injure the goods. A plan some time ago was invented to overcome this objection and render the sulphur itself incapable of blooming by subjecting it to a process before mixing it with the rubber.

The sulphur was rendered lastingly amorphous by fusing it with a fatty, or resinous body by heating until it became brown or like tar so it would not flow. This made the sulphur temporarily amorphous, and then the greasy substance was added to it, being continuously stirred in until samples of the hot mass being cooled showed no symptom of crystallization. It is then that the amorphous state is found to be permanent. The mass then was poured out, cooled, broken up and ground. The formula in one case to accomplish this purpose, one quarter of a pound of Canada balsam to a pound of sulphur or the proportions can in some cases be made equal. The quantity of sulphur varies of course with different compounds, but the suggestion is made that six to seven per cent. of sulphur be ordinarily used to the weight of rubber.

AMERICAN MACKINTOSHES IN DEMAND.

IT is refreshing in the midst of the pessimistic talk that many of the mackintosh manufacturers have indulged in of late to meet a genuine optimist, such as Mr. S. Lewis Gillette, of the American Rubber Co., Boston. Said he, recently: "We are sold six weeks ahead, and I am now receiving telegrams daily from customers urging us to hurry goods along. I think this is partly because Western buyers have learned that they cannot get suitable goods at fifteen minutes' notice, and so are ordering ahead. Personally, therefore, I feel very cheerful about the outlook. It will take us some time to catch up, and then too there is no reason now why fresh orders should not come in freely. We are pretty sure to have a big season."

A WOONSOCKET SUGGESTION.

IT is believed that if Mr. Banigan should secure control of the Woonsocket company's old property the change would be beneficial to the people of this city and Millville and that shut downs of the works would be fewer and of shorter duration than has been the case under the trust régime.

With the Woonsocket company out of the trust competition in the rubber business would be sharper.—*Woonsocket Call.*

THE USE OF GUTTA-PERCHA IN THE UNITED STATES.

By John M. Armstrong.

IT is not a pleasant thing to say perhaps, but the manufacturers of the United States show a dullness and apathy in certain lines, that is in marvelous contrast to their progressiveness in others. For example, if one wishes to get articles manufactured of Gutta-percha, it is next to impossible to get any one to even attempt the work unless it be in staple lines. On the other hand if anything is to be made of India-rubber, no matter how insignificant, there are scores of bidders for the work. India-rubber has completely eclipsed Gutta-percha in America, and it is a pity that it is so, for there many places in which Gutta would fit far better than rubber. The progressive rubber manufacturers to day are looking for new gums for friction, for packing, for special work, and examine anything new in rubber with the deepest interest. If, however, an importer brings in a ten-cent low grade Gutta and ask that it be tried, even if he can point out a place where it is needed, and tell how to manipulate it, the manufacturer nine times out of ten, will refuse to touch it. Not only is this distaste toward experimenting with Gutta very general to-day, but it is on the increase, and that too in the face of the fact that in Europe the business is growing, and every new grade of the gum finds some good use. For instance, a six cent Gutta, an inferior article of course, was rejected with contempt by the American manufacturer as utterly worthless. An English firm however, took it up, and made of it a paint for ships bottoms, to which no barnacle can be tempted to attach itself, and as a result have made a handsome fortune.

Twenty years ago it was not an unusual thing for an order for fifty tons of Gutta to be placed by a single firm. To-day such an order would be looked upon as a great curiosity. Nor is this falling off due to the scarcity of the gum. Orders can be filled in spite of the constant talk about the growing scarcity of the article.

Gutta percha in the United States is used chiefly for the insulation of cables, in the making of cements, in pattern work, in linings for soda fountains and acid tanks, in golf balls, and in the manufacture of tissue. In spite of this more manufactured Gutta is imported than is here made. Here Gutta-percha tissue is costly. In Europe it is so common and so cheap that every tiny bunch of flowers for the buttonhole has the stem wrapped in it to keep them from wilting.

In keeping with the indifference of the rubber manufacturer regarding this wonderful gum is the ignorance of the general public concerning it. The vast majority believe it to be the same as India-rubber, while the semi-intelligent few confuse it with vulcanite. For this and other reasons it seems to me that an occasional *résumé* of the history of Gutta-percha should be a part of the educational plan of THE INDIA RUBBER WORLD.

The Gutta percha of to-day is produced chiefly from the tree known as the *Dichopsis Gutta*. This tree is of great size, being from 4 to 5 feet in diameter and between 100 or more feet in height. It has a clean, straight stem, the flowers are small, white, and divided into six petals and six sepals. The seeds, generally two in each fruit, are early eaten by birds and monkeys. The method of collecting Gutta has been many times described and does not vary particularly from year to year, although through the efforts of the conservators of forests the trees are now being carefully tapped instead of being felled as heretofore. The Gutta as first collected is white, but soon becomes pink and finally brownish red. A fact with regard to crude Gutta-percha that is not generally understood is, that there are many varieties of it. For instance in the Straits Settlements, are to be found six kinds of *Dichopsis* which produce a marketable article, no two qualites being alike. Further than that, nearly a hundred species of Gutta producing trees have been located and described by botanists, most of which are to-day tapped for the gum.

It is of interest, now that we are fairly launched into a consideration of this subject, to go back a few years and learn what the past of the gum has been.

Gutta-percha, like many other of the most valuable substances and agents in nature, was discovered by accident. The merit of the discovery is due to Dr. W. Montgomerie, of England. He received, in 1845, the gold medal of the Society of Arts in London, for his valuable service in introducing it to the British public.

As far back as 1822, when on duty at Singapore as assistant surgeon to the Residency, he accidentally heard the name of the substance, and was led to make some inquiries concerning it; but it was not till 1842 that he met with any success. While at Singapore he observed on one occasion, in the hands of a Malayan woodsman, the handle of a *parang* made of a material quite new to him, and which appeared to be very different from Caoutchouc, to which his attention had hitherto been mainly directed. On inquiry he found that it was made of a substance which the natives called Gutta-percha. Having subjected it to experiment, he speedily discovered many of its valuable properties; and at once concluded that if procurable in large quantities, it would become extensively useful, and would in a great degree supplant the use of Caoutchouc. The conclusion induced him to forward specimens of the Gutta-percha to the Asiatic Society of Bengal, and to the Society of Arts in London.

When Dr. Montgomerie made his inquiries in 1842, this substance was quite unknown to the people at Malacca and Sumatra. The Gutta-percha tree grows abundantly in the island of Singapore and in the dense forests at the extremity of the Malayan Peninsula; also in Sarawak, and all over the island of Borneo. The tree is one of the largest found in these forests, and while its wood is seldom used, an oil is procurable from the fruit, which the natives use with their food.

Gutta-percha was first introduced into England for purposes of manufacture, by Richard Archibald Brooman, of London. To him letters patents were granted for some of its applications in 1844 and 1845. Others were granted as follows: In May 20, 1845, to Christopher Nickles, for its application to book-binding, etc.;—May 29, 1845, to Charles Keene of London, for its application to boots, shoes, hats and all articles of wearing apparel;—September 4, 1846, to a Quaker of Dublin, by the name of Bewley, for its application to the manufacture of flexible syringes, tubes, bottles, hose and articles of a similar description;—Three, dated January 12, 1846, May 15, 1846, and February 15, 1847, were granted to Charles Hancock, of London, for the manufacture of machine bands, cords, etc.

For the first two years (1845 and 1847), after the introduction of Gutta percha as an article of commerce and manufacture, it was confined to England. This will occasion no surprise, when we consider the shrewdness, the energy and enterprise with which the article was managed by the English patentees. As soon as it was discovered that Gutta-percha had any value for manufacturing purposes, the Dublin Quaker and others purchased all the patents in England, formed a gigantic company, enlisting in it many members of the East India Company, and at once commenced the manufacture of Gutta-percha in all its branches. This Company immediately applied for letters patent in France, Germany and the United States. So that scarce had the name of the article reached the public ear, before a vast monopoly, with one of the richest banking houses in England at its head, was formed. This rapidity of movement and abundance of capital were necessary to secure the end the company had in view; namely, to monopolize not only the manufacture of Gutta percha, but also the raw material. For this purpose they established their agencies at Singapore, and, in connection with the East India Company, planted them along the entire length of the Malayan coast. All this was accomplished ere a word reached this side of the Atlantic. To this statement there is one exception; for as early as May, 1846, William S. Wetmore, Esq., an eminent merchant of the city of New York, received from one of his agents at Singapore a few bundles of whips made by the natives of that country. Always distinguished for sagacity and enterprise in his business movements, this gentlemen became at once exceedingly anxious to know more of this substance. Himself a pioneer of the island of Borneo, and well acquainted with the resources of that and the neighboring islands he immediately ordered his agents to purchase the raw material and ship it to the United States.

In the summer of 1846, Samuel T. Armstrong, of New York city, well known for his numerous and important contributions to the useful arts, received from one of the directors of the East India Company specimens of Gutta-percha, in its crude and manufactured state, with an invitation to visit London, for the purpose of effecting some arrangement with that company, by which that article might be introduced into the United States. Owing to engagements entered into with the American government, Mr. Armstrong could not leave for London till the month of March, 1847. He arrived in England about the first of April, visited all the Gutta-percha manufactories there and on the Continent, and finally made arrangements for the purchase of the patents granted by, or to be granted by, the United States to Brooman, Hancock, Bewley Keene and Nickle. He also effected an arrangement with the monopoly in London for a supply of the raw material, knowing that without such an arrangement it would be impossible to undertake the manufacture of Gutta-percha in this country. Mr. Armstrong returned to the United States in the fall of 1847, and immediately applied himself to the construction of the necessary machinery. This being accomplished, he at once began the manufacture of Gutta-percha in all its most important branches. The first intimation which reached the public of this was the announcement of the arrival of an invoice of Gutta-percha from London, consigned to S. T. Armstrong. From these facts it will be seen, that Mr. Armstrong was the earliest importer of Gutta-percha, as an article of commerce and manufacture, into the port of New York, and the first manufacturer of the article in the United States. The first Gutta-percha belt used in this country on machinery was sold by Mr. Armstrong to Messrs. Corning, Horner and Co. to be used on machinery run by them at Sing Sing, N. Y.

A curious fact about the early use of the gum was that by many it was believed to have a far more brilliant future than India-rubber.

In the manufacture of vulcanized India rubber at that time under the Goodyear patents, there were those who honestly believed that Gutta was destined to drive out rubber. It was a matter of belief that from Gutta-percha could be produced all of the goods that to-day are produced from India-rubber. In a pamphlet issued by a Gutta-percha company in the early fifties the following comparisons between crude India-rubber and crude Gutta-percha, are instituted and as they serve to show the radical difference between the two gums; they are worth quoting.

"India rubber is of a soft gummy nature, not very tenacious, astonishingly elastic."

"Gutta-percha is fibrous, extremely tenacious, and without elasticity or much flexibility."

"India-rubber once reduced to a liquid state by heat appears like tar and is unfit for further use."

"Gutta-percha may be melted and cooled any number of times without injury for future manufacture."

"India-rubber coming in contact with oily or fatty substances is soon decomposed and ruined."

"Gutta-percha is not decomposed by coming in contact with oily or fatty substances."

"India-rubber is ruined by coming in contact with sulphuric, muriatic, and other acids."

"Gutta-percha resists the action of these and nearly all acids."

"India-rubber is a conductor of heat, cold, and electricity."

"Gutta-percha is a non conductor of heat, cold, and electricity."

"India-rubber exposed to the action of boiling water

increases in bulk, does not lose its elasticity and cannot be molded."

"Gutta percha exposed to the action of boiling water contracts, becomes soft like dough, may be molded into any shape, which will be retained when cool."

"India rubber is not a perfect repellant of water but is more or less absorbent according to quality."

"Gutta-percha has an oily property and is a perfect repellant of liquids."

It is important for the reader to understand that the writer was talking about *crude* or unvulcanized India-rubber and crude Gutta percha. The success that the Goodyear patents attained in doing away with almost all of the disabilities on crude India rubber led inventors to attempt to remove the very plain disabilities that Gutta percha possessed. Among the first to claim to have succeeded in producing vulcanized Gutta percha was Chas. Hancock of England, while in this country were granted what were known as the Rider and Murphy patents for the vulcanization of Gutta-percha. The first of those granted in 1852 to Wm. E. Rider described the preparation of the Gutta-percha for vulcanization as follows: First heat the gum to 285° to 430° F. to expel all volatile gases. Then incorporate a hyposulphite either with or without metallic sulphurets, or with or without whiting or magnesia. Then subject to temperature from 285° to 320° F. The second patent granted to Wm. E. Rider and John Murphy in the year following covered a process for subjecting the Gutta-percha goods to hydrogen gas to remove the bloom.

There is no doubt but what the goods produced by this firm had many characteristics that we do not expect to find to day in manufactured Gutta-percha, and were the gum more abundant and cheaper than India-rubber, some such processes would be doubtless used. It is also within the limits of probability that our mackintosh fabrics and many other goods would have Gutta percha for water repellant instead of India-rubber. It is a matter of record that fabrics were produced that were very similar to vulcanized rubber, would stand a high degree of heat, and that never decomposed nor grew tacky.

While the Americans were claiming to vulcanize Gutta by one process, the English were at work on another, for in 1846, Chas. Hancock was granted a patent for combining Gutta-percha with sulphur or sulphurets and treating it for a long time under a high pressure of steam. He also describes the manufacture of porous Gutta percha by mixing it with alum, carbonate of ammonia, or some such substance that volatilized easily, and subjecting it to heat. In a patent granted to him in May of the same year he steeps Gutta-percha in an alkaline solution thereby diminishing its acidity and removing its smell. In a patent granted in February of the year following, he really claims the vulcanization of Gutta-percha by a combination of sulphur and sulphurets. The proportions that he advises are 48 parts of Gutta-percha, 6 parts of sulphuret of antimony or hydrosulphuret of lime or some analogous sulphuret, and one part of sulphur. The compound is boiled under pressure.

All this is of course interesting and shows the experimental work done by the early pioneers in India rubber to develop Gutta-percha. To day no one expects this gum to take the place of rubber. As a *vulcanized* gum it is not a success, but for acid work, for insulation under water, and for a thousand and one special uses it is needed, and every manufacturer of mechanical rubber goods, of druggists' and surgical specialties, or of insulators, should be perfectly familiar with it.

NEW THINGS IN RUBBER IN ENGLAND.

A NEW idea in the coloring of India-rubber playing balls has been patented by the Hille India-Rubber Co., Limited, of Eccles, near Manchester, England. The object sought is to remedy the complaint so often made that any paint used on rubber balls soon cracks or rubs off. The method proposed is to color the rubber sheets from which the material for the ball is cut, throughout their thickness, by incorporating aniline dyes or pigments with the rubber in the course of manufacture. The promised result is that it will be possible to clean such balls as frequently as may be desired without removing the color, and particularly without destroying any pattern or design with which the ball may be ornamented.

A patent has been issued to Albert Chester Ives, of London, for his invention of a pneumatic cushion for billiard-tables, involving the use of India-rubber, and of methods for suitably attaching such cushions to the tables.

"Anti-slipping goloshes for horses" is the name given by Thomas Johnson, of Dudley, Worcestershire, for a new device for which he has obtained a patent. Its object is to prevent horses from slipping on street pavements or ice. The anti-slipping shoe is designed to fit the horse's foot in the same manner that a laced or elastic boot fits the human foot. The sole is made of thick corrugated India-rubber, or India rubber attached to leather. The sides of the shoe, attached to the sole can be made of sheet India-rubber, or of leather, with elastic goring to permit the easy adjustment of the shoe.

Some of the patents recently granted in England to citizens of the United States on inventions already patented in this country are as follows: Wheeler Cable (Boston), for improvements relating to the treatment of plastic rubber compounds; M. L. Warson and Edward F. Pickett (Buffalo, N. Y.), for an armored flat-tread pneumatic bicycle-tire; Edward E. Gold (New York), for a method of attaching flexible hose to rigid pipes.

ELASTICITY OF RUBBER NOT PERMANENT.

INDIA-RUBBER is often thought to be elastic, but it is not so in reality. Air and similar gases are elastic, but rubber is only very partially so. Air will return to its original bulk no matter how long it may have been kept in compression, but rubber is not truly compressible; it merely has the power of returning to its original shape, provided that it has not been pressed out of that form too long. If you take an absolutely true cube of rubber, say one inch every way, and stand a weight of 28 pounds on top of it, the cube will flatten out according to the purity and hardness of the rubber. If the weight be kept in position for, say three months, and then removed, the rubber will never return to its original form, but will always remain flattened. In saying that India-rubber is not truly compressible, I mean to say that a cubic inch of it, for example, cannot be made to occupy half that space. Weight or pressure merely alters the form of the rubber.—*American Cyclist.*

RECENT ENGLISH DECISIONS IN INDIA-RUBBER LAW CASES.

WITHIN a short time past two decisions have been rendered in English courts which possess more or less interest to the India rubber trade, by reason of the names of the litigants and of the patented processes involved, besides their general interest as serving to define how far one patent may be held to be anticipatory of another subsequently granted.

AN action was brought by R. & J. Dick, manufacturers of Gutta-percha belting of Glasgow, Scotland, against John Tullis & Son, of the same city, for infringement of a patent obtained by the plaintiffs in 1885. The defendants replied that they were now making goods upon details of a much older patent (granted to Spencer Thomas Parmelee in 1858), which was sufficiently old to have become public property. They testified further to having begun in 1857 the manufacture of what they called "Canvas and Gutta-percha belting," their process being then guarded as a secret. In the judgment in the case Lord Kyllachy said that he was unable to distinguish the process claimed by the plaintiffs from that used by the Messrs. Tullis in their works from 1857 to 1861, and then so used with the result of producing material publicly sold and used. He therefore found that the complainers' patent was invalid in respect of prior public use. The plaintiffs appealed from this decision to a higher court, where judgment was given on January 6.

The decision of the latter court is in favor of the plaintiffs on the point raised against the completeness of their patent specification, and sustains their claim to have been first to *publish* the invention. But it relates chiefly to the question of the alleged prior *public use* of the process covered by the Dick patent. The points to be considered were—(1) was it proved that the defendants did use a process similar to that of the plaintiffs, and (2) was such use made of the article produced as would render any subsequent patent void by anticipation.

As regarded these questions, said the court, the evidence has been most meager. It had been presented by the defendants themselves, without corroboration. Not a single piece of machinery or other article which was said to have been used in the work was extant. Some models had been produced, but these were made for use in this case. That the defendants and their father had experimented on the making of Gutta-percha belts was probably quite true, but that they had used what was in fact the same process as the Messrs. Dick's was not, in the court's opinion, proved. Even if the process were the same, its secret use by the defendants would not constitute publication. Their case must depend upon proof of use.

If the account which the defendants gave of prior use was not exaggerated, the court could not understand their failure to bring some reasonable corroboration of their statements. According to their evidence they had sold as many as 100 belts, made according to the anticipatory process, in each of three successive years. Either these belts were sold to many firms using machinery, or in larger numbers to each of a few firms. In either case it was inconceivable that no evidence should be forthcoming. If the belts were sold, and were like the plaintiffs', being thus a new manufacture with special features, they would surely have made some impression, and some recollections of them, or correspondence in regard to them, would now be available. A make of belting which had so taken the market that its sale from the date of its introduction by the Messrs. Dick had risen by leaps and bounds, and in its ninth year was practically equal to $500,000, should, if made and sold in hundreds at an earlier period, have left some trace on the mind of the trade, and have made too favorable an impression for its manufacture to have been suspended for a long period. It lay with the defendants to prove that they had made Gutta-percha belts similar to those of the Messrs. Dick at a period antedating their patent, and that such use had been made of it as to prevent any subsequent patent from being valid. On the issue of fact the court was of the opinion that they had failed to discharge the onus which was upon them. Having delivered this opinion their lordships, upon request, granted a certificate, under the patent acts, that the Dick patent (No. 12,254 of 1885) had been found to be valid.

II.

ANOTHER case giving rise to somewhat similar questions was that of The Shrewsbury & Talbot Noiseless Tire and Cab Co., Limited, *v.* Sterckx, brought for the alleged infringement of letters patent granted to William H. Carmont, of Manchester, England, for improvements in the attachment of India-rubber tires to vehicle-wheels. [This is the process used largely on rubber-tired cabs in London and formerly to some extent on caariages in America.] The defendant denied infringement and challenged the validity of the patent, on the ground of anticipation, mainly by a patent granted in 1862 to Alleyne and Roberts. Mr. Justice Romer rendered a decision in favor of the plaintiffs, from which an appeal was taken.

The appellate court gave judgment dismissing the appeal. The question was whether the Carmont patent of 1883 had been anticipated by the earlier patent of Alleyne and Roberts, or, if not anticipated, whether those patentees by their specification, had given such information to the public as to the rolling by rollers of wrought iron at welding heat, and especially as to the rolling of channel iron so as to form a trough section, that there was neither novelty nor invention in the plaintiff's patent.

"It was proved beyond all controversy that, prior to the year 1883, when Carmont took out his patent for 'improvements in the manufacture of grooved tires for wheels,' the application of an India-rubber tire to the outside circumference of an iron tire of a carriage-wheel could not be made so as to be of commercial utility. India-rubber had been in use to a limited extent, upon the wheels of private carriages, but the cost of affixing an India-rubber tire to the iron tire of a carriage-wheel by any of the then known methods of affixing, which was effected by cutting a groove in the iron tire by means of a lathe, was so great as to prohibit its application to carriage-wheels in general. It was proved that the cost prior to 1883 of cutting out a groove in an iron tire by a lathe was £20 for a set of four tires, whereas by the process of rolling, as described by the plaintiff's patent, the cost was about 10s. a tire—*i. e.*, £2 for a set of four. The result of this invention was that vast numbers of cabs and other public vehicles have since 1883 been fitted with India-rubber tires, to the great benefit of the public. . . . . Messrs. Alleyne and Roberts' patent of 1862 expired in 1876. It is not suggested that anything approaching that which has been produced by Carmont by means of his process of rolling was ever produced under the patent of 1862, either while it existed or subsequently thereto, prior to the plaintiff's patent of 1883; and it is not disputed that, except for Messrs. Alleyne and Roberts's patent of 1862, Carmont's invention was good subject matter for a patent."

The court then proceeded to the question of what constituted an anticipation by descriptions contained in a prior specification. Lord Westbury had once summed up the law as follows:

Upon principle, therefore, I conclude that the prior knowledge of an invention to avoid a patent must be knowledge equal to that required to be given by a specification—viz.: such knowledge as will enable the public to perceive the very discovery, and to carry the invention into practical use.—(*Hill v. Evans.*)

The invention must be shown to have been before made known. Whatever, therefore, is essential to the invention must be read out of the prior publication. Lord Esher had decided:

You must show that a person—I mean a person conversant with such matters—reading the writing would find in the writing alone a reasonably clear description of his own invention on the face of that writing, construing the writing reasonably as describing the invention.—(*Otto v. Linford.*)

And Lord Justice Cotton had said:

We know what is necessary if there is said to be an anticipation, not by the existence of an actual thing, but by description, either in a specification or otherwise, that the description must be of such a character as to enable any one competent to make the machine for which the protection is claimed from the description given.—(*Erlich v. Ihlee.*)

The decision concludes: "It appears to me, applying this law, whether the specifications and drawings of the patent of 1862 are to be construed alone, or whether the evidence is looked at, the specifications and drawings of 1862 do not enable the skilled workman to perceive the very discovery to carry the invention into practical use; and I agree with Mr. Justice Romer when he held that inventive ingenuity was required to bring about what Mr. Carmont effected, and which, be it noted, though the result was much desired, no one perceived until Mr. Carmont did so in the year 1883. In my judgment the patent of 1862 neither anticipated nor imparted such information as to render invalid the patent of 1883, either on the ground of no invention or no novelty.'

RUBBER IN WRINGER-ROLLS.

"IT'S all in the rubber" is the summing up of a pamphlet issued by a clothes-wringer manufacturer, as to why some machines of this class are better than others. Hard wringer-rolls have less rubber or poorer rubber, and therefore may be cheaper, but they lack elasticity, they do their work poorly, and they wear out quickly. The elasticity of soft rolls adapts them to thick and thin goods alike, and to inequalities in thickness. The softer the rubber—if the compounding be properly done—the longer the rolls wear, the better they wring the clothes, and the longer the clothes last. The importance of the clothes-wringer industry is indicated by the fact that a single concern engaged in it in the United States is a corporation having $2,500,000 of capital.

BURNT RUBBER ABSORBS GOLD.

THE number of uses to which rubber can be applied is constantly on the increase. The burnt rubber used for the final polishing of the gold lettering, etc., in the government printing office, is simply India-rubber which has been subjected to a peculiar fire process that renders it very absorbent. So remarkable are its powers of absorption that a piece the size of one's finger nail will easily take up five dollars worth of gold in its pores. When such a piece of rubber is loaded with all the gold it will fairly carry, it is sent, in company with others in the same condition, to the mint to be assayed.

A TRAVELING MAN ON BRANDS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Will you allow a traveling man from the "Wild and Fuzzy" West a few words in your columns? I have read many good things in THE INDIA RUBBER WORLD, but do not recall having seen anything (except ads.) about the multiplicity of brands and qualities that each manufacturer of mechanical rubber goods seems to think necessary to make. I am but an ordinary traveling salesman of mechanical rubber goods, with no factory experience, but having been in the rubber business since 1875, a large part of the time on the road, meeting all classes of buyers, consumers, and dealers, my experience is that the small dealer is almost the only buyer asking for second or third grade brands.

The primary object of most of the manufacturers is to (directly or indirectly) cater to the consumer and supply him goods that gain his good will and friendship for some particular brand. In my travels I call on both consumers and dealers and almost invariably the consumer wants the best, while the dealer is looking for those goods he can make the most profit on. If he (the dealer) can get a second or third grade of any make that has the best local reputation, he buys it and misleads his customer by saying, "This is made by so and so."

This works all right for both dealer and manufacturer,—for a while, but the time comes when the consumer is induced to try some other "first grade" which outwears the third grade heretofore furnished by the local dealer. When the new favorite is well established the dealer promptly switches his account and gets second or third grades of the same make with the same results.

Another point is that most traveling men are more anxious to make a sale than to make a reputation for the goods they represent. The more goods sold, the more salary or commission earned. With such men quality is of no consequence, price is the main point. Consequently the tendency is to name prices on the lowest grades first, and then, if the customer is "an easy mark" to try and work in some of the better grades, failing which he puts all his energy, guarantees, etc., on the cheaper grades, solely intent on making a sale.

Think of the quantity of rebates and allowances that occur every year and with every factory, on just such goods and guarantees. Would it not be better to make but one quality and let that be known as the best that particular factory could turn out? Would not each factory hold both trade and reputation better?

Many of the principal factories have branches or agencies, to whom goods are consigned, all over the United States. Think of the amount of dead stocks, remnants, deterioration and interest that could be saved by carrying only one brand (instead of three to five) of each line, in every agency.

I believe that if six or seven of the most prominent manufacturers would agree to each make but one brand of belting (plain and stitched), one brand each of water, steam drill, oil, tanners', brewers', fire, and suction hose, and not to exceed two grades of ½ and ¾ inch garden hose, that each company would sell fully as many feet of their single brand, as they now do of all grades combined

If there be any doubt of the feasibility of making only one grade, let them each try the experiment of making a cheaper grade and branding it "Second Quality" in large size, legible letters, instead of calling it some high-sounding name that means nothing, and I am sure they will be astonished at the very small quantity that will be sold. F. C. ANDERSON.

"On the Road," January 21, 1896.

NEW GOODS AND SPECIALTIES.

COMPLAINT has often been made that small articles in hard rubber are apt to be fragile and easily breakable and it is to overcome this fault that the metal cored piston here shown, is made. This invention is so simple that it really needs no explanation. It is, in a word, a rod

of iron or steel upon which is vulcanized a covering of hard rubber to be used as a syringe piston. The metal is entirely covered by the rubber, and while it does not add appreciably to the weight, it makes it so strong, that it is next to impossible to break it. These piston rods are manufactured by the Butler Hard Rubber Co., Mercer street, New York.

HALLOWELL'S SELF CLOSING SPRAY PIPE.

THIS spray pipe is a decided improvement over the old-fashioned ones where the stream is governed by turning the nozzle round and round. In this, a slight pressure on the lever handle is all that is necessary to produce any change in the size

of the stream desired. Further than this it has a pawl and ratchet by which it can be adjusted to any desired stream for any length of time. These goods are handsomely finished and already selling well in the trade. Manufactured by King & Knight, 35 Wendel street, Boston.

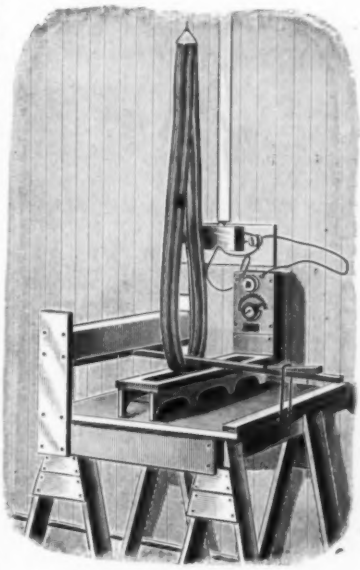
A STAMP AND ENVELOPE MOISTENER.

AN exceedingly convenient and labor saving article is shown in the accompanying illustration. It consists of a rubber bulb which is filled with water, and connected with a distributing

tube. This distributing tube is a nickel plated attachment and so arranged that a slight pressure upon the bulb supplies just enough moisture to dampen the gum on a envelope or a stamp. The bulb is filled by first compressing it to remove the air then dipping the nozzle in water and holding it there until it is filled. In use the outlet nozzle is run lightly over the gummed surface of the flap, the bulb being very slightly pressed. If too much moisture is expelled the nozzle is drawn back over the surface and the suction of the bulb will at once absorb it. This moistener is not only useful for stamps and envelopes, but is adapted for damping labels or indeed any gummed surfaces. Manufactured by Adolph Steubner, Bennett, Pa.

THE PALMER ELECTRIC VULCANIZER.

MORE than a year of careful experimenting has been put on this apparatus and it is now in the hands of bicycle repair men, with the belief of the manufacturers that it is perfect. They claim that they have subjected it to every test, and of the thousands of repairs made with it in Chicago and New York, not one has been unsuccessful through any fault of the machine. In use, the temperature of the plates is controlled by the switchboard on the rheostat at one end of the vulcanizer, which contains 14 contact points. When the arm is turned to the first point, or to the extreme left, the current is off. The proper temperature will be found at about the eleventh or twelfth contact point. The manufacturers issue a circular giving instructions for use that any repair man should be able to comprehend. These instructions cover the use of the vulcanizer, the preparation of plugs and patches, the preparation of the tire for the plugs and patches, the insertion of the plugs, the insertion of the patches, the general instruction and the particulars necessary for repairing. The vulcanizer and materials, are shipped to any dealer f. o. b. Chicago, for sixty-five dollars. Manufactured by the Palmer Pneumatic Tire Co., 133 South Clinton street, Chicago, Ill.



THE VIM SINGLE TUBE TIRE.

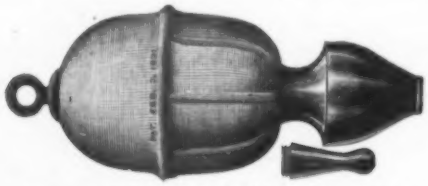
SOME of the points of excellence about the tire here shown are, first, that it is cured under a slow heat, a point of great importance in the vulcanization of rubber goods. It is made on the "constrictive" principle which gives it more speed and enables it to hug the rim closer. As there is more or less variety in the circumference of wood rims, molded tires while they fit some of them do not as a rule fit them all. The Vim however will fit any rim. It cannot creep as when it is inflated it clings closely to the rim. Made as it is of a close woven fabric it is very difficult to puncture, or if it should be punctured, is quickly mended, as the plug has the close fabric to hold it in

place. The tire has proved to be a very smooth rider, never "bunching" even under the severest use. It is made with the well known pebbled tread which prevents slipping in muddy

weather, and is said to give added speed. Manufactured by the Boston Woven Hose & Rubber Co., Boston, Mass.

THE PERFECT SYRINGE.

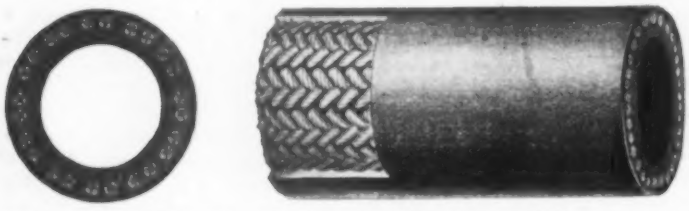
A NEW type of syringe known as the "Perfect" is claimed to be superior to anything similar on the market, for the reason that it is fully controlled by the operator. The ring at the bottom of the bulb is pushed to secure expulsion of the contents,



and when drawn back brings the fluid back into the receptacle. It thoroughly washes and medicates every part, has no tubes to get out of order, can be filled and carried about ready for use. The capacity is half a pint. Manufactured for the wholesale trade by the B. F. Goodrich Co., Akron, O.

THE CHICAGO ELECTRIC HOSE.

THE illustration shows a new kind of patent hose that has lately been mentioned in THE INDIA RUBBER WORLD. It is radically different from anything heretofore made in this line. The process by which it is manufactured is a unique one, and at the same time it is simple and practical. The hose is made in 500 feet lengths, is absolutely smooth upon the surface, and will stand five hundred pounds pressure without bursting. Other advantages are that it is exceedingly elastic, flexible and



hard to kink. It saves waste in cutting, and is so salable that the manufacturers have found it hard work to supply the demand. Samples and prices may be had on application to J. E. Rhoads & Sons, 239 Market street, Philadelphia.

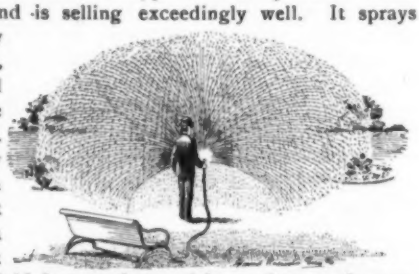
THE LYCOMING GIRARD.

THE Girard is unique among Lumbermen's shoes. You will notice by the cuts given here that it consists of a shoe with a double top, and a sock into which is woven,—about half way from the foot to the knee,—an extra outside flap. When the shoe is put on over the sock, this outside flap is turned down over the shoetop, and then a second shoetop, which you will notice in the cut, is laced snug around this extra sock flap. This makes the shoe exceedingly snug and practically impervious to snow, for to get inside the shoe the snow has to work down, and then up, and then down again. The reader will find in the full page advertisement of this shoe

in this issue, three more illustrations which show its practical workings very clearly. It is a famous shoe for the Lumbermen, as it affords absolute protection, and at the same time is light, easy fitting and warm. It is a good shoe for farmers too, whose work carries them out into the woods in the spring before the snow is off the ground. Manufactured by the Lycoming Rubber Co., Williamsport, Pa.

CHILD'S RAIN MAKER.

THE illustration shows a new type of lawn sprinkler which is very simple and is selling exceedingly well. It sprays the lawn quickly and uniformly, never clogs, and conveys a large quantity of water. It throws a spray 12 to 15 feet in front, and 25 feet or more wide, at a good pressure. It

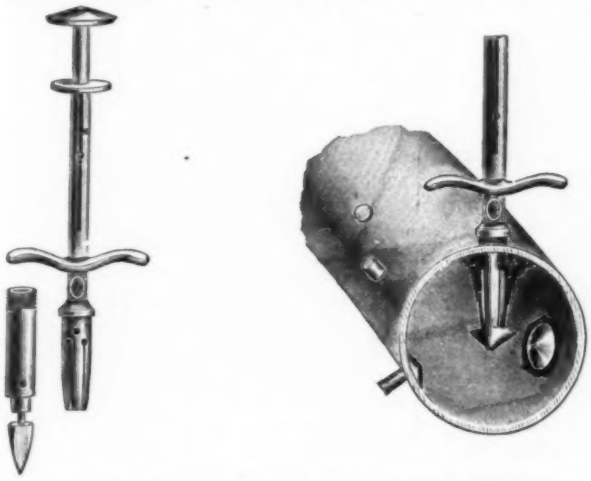


can be laid down and moved from place to place on the lawn without shutting off the water at the hydrant. For greenhouse use it is invaluable as it sprays the under side of the foliage with perfect ease and the full force of the water. It is made of polished brass, cannot get out of order or wear out. For sale by Jones & Rogers, manufacturers agents, 933 Monadnock Building, Chicago.

THE EUREKA REPAIR TOOL.

THE Eureka Repair Tool is made for single tube tires and is considerably different from tools now in use. The special point of difference is that it carries the plug and cement as

separate factors. The plug is pushed through the puncture first, after which the cement is injected around the plug, on the inner surface around the puncture, imbedding the head of the plug in the cement and precluding any possible air escape. A



further point of advantage in the Eureka is that it has a cutter, so that it is not necessary to burn out the puncture. The two illustrations show the manner of using the tool. Further directions will be sent on application to the Syme Manufacturing Co., 46 Van Buren street, Chicago.

BAILEY'S LATEST.

BAILEY the ingenious, the irrepressible, is out with a new invention for which patents will be granted very shortly, and which is said to promise even better than any of the successful things yet launched by him. This is a series of tiny rubber cushions to go upon eyeglasses just where they pinch the bridge of the nose. The rubber surface that comes next to the flesh is made up of little cups, shaped like the bottom of a fly's foot, the result of which is that the glasses cling closely to the nose, in fact cannot be shaken off. At the same time there is no troublesome pressure, and as the hold is not continuous the circulation is in no wise impaired. Opticians speak very highly of this new invention and there is no question but what it will be a seller. Manufactured by C. J. Bailey, 22 Boylston street, Boston.

A NEW HYDRAULIC PACKING.

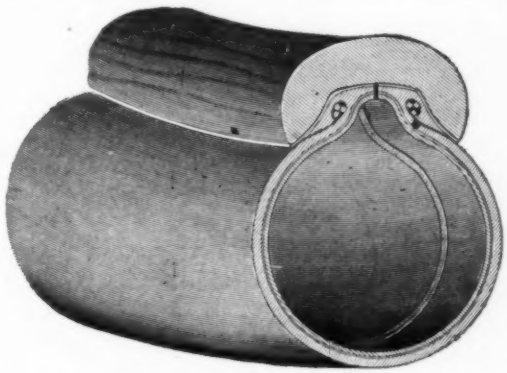
THERE has been a constant call for many years for a good water packing, and it is the most natural thing in the world that a successful manufacturer of steam packing should be able to supply that demand. The Garlock Waterproof Hydraulic Packing is the outcome of many experiments and practical tests on the water ends of pistons, plungers, hydraulic elevators, etc. The packing is made of the best flax, lubricated with a waterproof compound which is strictly free from acid. These goods are furnished on rod and stuffing box measurements only, made in all sizes, from ¼ inch to two inch. Manufactured by the Garlock Packing Co., Palmyra, N. Y.

NEW MACKINTOSH LINING.

AN entirely new plan for lining tailor-made mackintoshes has been conceived by a Boston firm, and it is said that the result is a boom in the garments that they are making. The plan is to have the lining made with seams that are simply cemented and stitched, but that are not strapped. In other words, the lining is exactly as the lining of a high grade overcoat would be. The pocket in the mackintosh, instead of being a patch, is on the inside, between the lining and the cloth proper. The garments are really very much improved by this method of making, and one will have hard work to tell whether the coat were mackintosh or a first-class overcoat. Goods thus made are manufactured by the John R. Farrell & Co., 765 Washington street, Boston, Mass.

THE COMBINATION DETACHABLE PNEUMATIC TIRE, 49.

THE Combination Tire is certainly as simple an inner tube tire as could be wished. The cover is attached to the rim by a small string, cord, or wire, and can be taken off and put back



in a very few seconds. The illustration shows the tire in the process of putting on, so completely that one needs no particular explanation to easily understand it. A special feature about the combination tire is its inner tube, which is made by an entirely new process, causing it to hug the rim tightly when inflated, thus preventing creeping, cutting the valve stem, etc. Manufactured by the Combination Roll and Rubber Co., Bloomfield, N. J.

THE WORLD SPRINKLER.

THE "World," so the manufacturers claim, throws a larger quantity of water, and distributes it more evenly than any other sprinkler on the market. It has a large, free water-way which makes it very easy on the hose. The water thrown by this

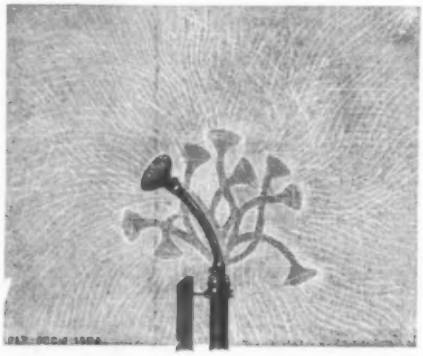
sprinkler comes out first as a fine rain, then bursts into large drops giving a fine effect. This sprinkler has no revolving parts nor anything to clog or get out of order. Manufactured by H. D. Edwards & Co., Detroit, Mich.

LAWTON'S EMERGENCY STRAP.

THIS is a very handy little article designed for quick repairs on bicycle tires. It is primarily used for puncture in single tube tires. In use a little cement is put over the puncture, the strap is buckled firmly on, the tire inflated, and the deed is done. No tools of any kind are required, which makes it the quickest and handiest repairer for an emergency in existence. A further use for it is to hold the tire to the rim in case it should suddenly become detached, as two of these straps will bind it firmly in place. Manufactured by the Clifton Manufacturing Co., 65 Franklin street, Boston.

THE CRAZY WATER WHIP.

AN exceedingly novel type of lawn sprinkler is that shown in the illustration. It is made of rubber of a specially durable



quality, the sprinkler itself being neatly finished in brass with nickel plated attachments. It throws the water in all directions covering a circle twenty feet in diameter. The pressure of the water on the flexible rubber tube causes it to twist, turn, and spring in all directions, sending a perfect shower of drops into the air evenly sprinkling everywhere. This type of sprinkler is very inexpensive, while as a lawn ornament is very attractive. Manufactured by the Crazy Water Whip Co., Shelbyville, Ind.

FROM NORFOLK, VIRGINIA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We notice your write-up of the Baltimore rubber houses in the February WORLD, and are disappointed to see that you omitted any mention of our city. We wish to state that our interests are closely allied to those of Baltimore and our business covers about the same territory.

We embarked in the rubber and oiled clothing business six years ago, succeeding P. Turney—who was largely instrumental in introducing the goods in this state about the close of the late war—and are proud to say that the growth of our business has far exceeded our most sanguine expectations.

We are sole agents for the celebrated Carter's oiled clothing in the South including Eastern shore Maryland, and claim to be the largest distributers of these goods south of New York.

It was greatly through our efforts that the Woonsocket goods attained a reputation in this market. At the present time our business is about equally divided between the Woonsocket and Boston goods. Our trade in mackintoshes last season was most gratifying and indications point to a greatly increased demand for 1896.

We travel four men and are right in the "push" and you can tell your readers so in your next issue if you have space and are so inclined. MONTAGUE & BUNTING.

Norfolk, Va, February, 15, 1896.

RUBBER-LINED VAMPS AND SOLES.

ONE of the latest schemes to keep the feet dry is the invention of a shoe with three soles. The bottom, or outer sole, is of leather, very compact, but not especially thick. This sole extends along the entire length of the foot, from the tip of the toe to the back of the heel. Above this is laid a second sole of black rubber, which extends from the toe to a point about one inch from the back of the heel. A thick sole, made of leather, is laid on top of this, and extends the length of the foot.

The rubber sole is relied on to afford protection from the moisture, and it seems to answer the purpose.

It is somewhat heavier than cork, and in this respect the latter possesses the advantage. But the rubber evens matters up by keeping the water out absolutely, which the cork does not seem able to do. The third sole serves to keep the foot warm in cold weather. The three soles together make a thickness of about three-quarters of an inch, which is somewhat more than the thickness of the ordinary winter sole.

If this were the only protection the shoe could hardly be called waterproof. The rubber sole offers only part of the protection against moisture. The uppers are provided with what is called a waterproof lining, consisting of a thin layer of rubber between the outer covering of the leather and the inner lining of canvas. It will be seen that if all the leather parts and the canvas inner lining be taken away from the shoe there will be left a rubber shoe, with a medium sole of rubber, and very thin uppers. Of course, without the leather to back it up such a shoe would not be durable. But in combination it is very effective, being lighter than the weight of an ordinary shoe and overshoe, and also affording a more complete protection.

COLLAPSE OF THE SO-CALLED IROQUOIS RUBBER CO.

CHARLES J. McDERMOTT, described in the court proceedings as "Manager of the Iroquois Rubber Co., so-called," of Setauket, L. I., was sentenced on February 27, to serve six months in the Suffolk county jail and to pay a fine of $50, on conviction of violating the corporation laws of New York state. He was arrested on a warrant issued by Justice of the Peace Smith W. Conklin, of Patchogue, L. I., upon information charging him with the use of an alleged corporate title with intent to defraud. The principal evidence upon which the conviction was obtained was based upon his transactions with the Singer Manufacturing Co. (New York), from whom he had bought sewing-machines and accessories valued at $1000, afterward refusing to pay their bills.

Charles Harold, a salesman for the Singer Manufacturing Co., testified, substantially, that on October 18, 1895, he visited Setauket, L. I., in response to a letter from the Iroquois Rubber Co. to his employers; that various parties in the village whom he met before calling at the factory informed him that one Elberson was at the head of three rubber concerns in the place; that they added that Elberson was under contract with the United States Rubber Co. not to make rubber goods within a certain time, for which reason his factories were managed by other parties; that he was conducted to what he was told was the factory of the Iroquois Rubber Co., surrounded by a high picket fence; that he found in the office inside a man who called himself C. J. McDermott, apparently very busy; that McDermott explained that they were making rubber clothing and bicycle-tires, and showed samples of their products; that they talked fully about sewing-machines, meanwhile going over the plant, winding up in a room where coats were being made. The witness stated that here he recognized the man in charge as one Rosenblum, whom he had previously met in a factory in New York, and paused to talk with him, and that Rosenblum stated that the company had promised him work enough for 100 sewing-machines. He said that Rosenblum stated, among other things quoted in his testimony, that the witness need have no hesitation about selling them the sewing-machines, as Mr. Elberson was back of them, and that Elberson owned nearly everything around there; that Elberson had had some trouble with the United States Rubber Co., but had managed to continue in business by organizing another company (the Iroquois Rubber Co.) to make and sell certain goods, not specifically stated, which the "trust" were paying him not to make. The witness said that upon resuming conversation with McDermott the latter stated that the men whose names appeared upon the Iroquois Rubber Co.'s stationery were used simply to blind the United States Rubber Co., but that the new stationery would bear the names of Joseph W. Elberson as president and McDermott as manager.

Here the witness detailed the orders accepted by his company, and his subsequent efforts to collect pay for the machines. On one of his visits to the Setauket factory, he found in the office a man who said he was J. W. Elberson, of the North American Rubber Co., who owned the factory, and that McDermott had no connection with them whatever, except to have his office in their building, and he professed not to know anything about McDermott or the Iroquois Rubber Co. "Elberson then asked the nature of my business with McDermott. I showed him a statement of our account with the Iroquois Rubber Co., all overdue, and said that it was to collect some or all of those bills that had brought me down. His conversation showed he was familiar with the account, and, pointing to one item of $250, he said that he had given McDermott that amount the day before to send to us. He ended the conversation by assuring me that McDermott would send the money at once."

After describing several visits to Setauket the witness proceeded: "Tuesday, the 14th [of January, 1896], I went down again. McDermott then said he would not give a chattel mortgage on the machines, and further said that he had no money whatever to pay us; that he had not bought the machines for the Iroquois company, but for the North American Rubber Co.; that there was no Iroquois company in existence; that it was only a blind used for the purpose of purchasing goods for the Liberty and North American companies. That it was intended to have the Iroquois company sued for the (our) amount due, then it would be shown that the North American company had purchased the machines from him (McDermott and the Iroquois Rubber Co.); that he (McDermott) had no authority whatever except to purchase the goods of different kinds as wanted by Elberson for the North American and Liberty companies. Before making the last statement McDermott told me, in a confidential way, of his connection with Elberson—of how he (McDermott) was being made to purchase goods, of his way of transferring to the other companies being thoroughly against his personal feelings. That Elberson had induced him to invest about $10,000 of his (McDermott's) money with them (the Liberty and North American companies and Elberson) and that he (McDermott) was going to make a big kick there some of these days, and make Elberson return his (McDermott's) money or he (McDermott) would expose his (Elberson's) methods of doing business. . . .

"He further explained the manner of the payment of bills by him (McDermott and the Iroquois company), which was not to properly word a draft on themselves. It would then be an easy matter to apologize and repeat the draft with a like result. If, however, they (McDermott and the Iroquois company) were compelled to give a properly-worded draft, it would be refused, then a letter of apology, and another draft stamped 'To clear through the Bank of Huntington.' That also would be ignored, and by that time the creditor would be tired of his deal and drop the matter; or, if he brought suit, to find no such company as the Iroquois. The above methods were being practiced every week, he said, and that if it were not for Elberson coming into the office every few minutes he would show me letters that would convince me of the truth of his statements. All transactions were made in the building now claimed by the North American Rubber Co. McDermott then, in the presence of Mr. Elberson, made out a draft for $193.08 in proper form, after several attempts to have me accept one not properly worded. For the balance, $100 monthly, he promised notes, which of course were not accepted."

Testimony of a similar character as to the methods of the Iroquois Rubber Co. was given by Fred. W. Moffett, representing the Magnolia Metal Co. (New York), who said that a quantity of Magnolia metal shipped to them was afterward located in the factory of the North American Rubber Co. [Such of this metal as had not been used was removed by the Magnolia Metal Co.'s lawyer on February 29]. Thomas J. Cunningham, of the firm of Robert C. Lowry & Co., lumber dealers at No. 30 State street, New York, also gave similar testimony. One car-load of lumber was shipped to the Iroquois

Rubber Co., and afterward found in use in the plant of the North American Rubber Co. Failing to collect the bill for this, $237.30, Mr. Cunningham stopped delivery of a second car-load on the tracks at Port Jefferson, and countermanded the order for a third at the company's mills. Another witness against McDermott represented McMann & Taylor, dealers in pipe, at No. 42 Cliff street, New York. An attorney was present at the trial for the Hardware Board of Trade of New York, which is the name of a collection agency, but the character and amount of their claims was not stated.

The sheriff of Suffolk county, John Z. O'Brien, testified to the contradictory statements which McDermott had made to him regarding his (McDermott's) connection with the rubber concerns at Setauket.

Lawyer H. R. Richards, of the New York firm of Booraem, Hamilton, Beckett & Ransom, testified to his experience with McDermott in attempting to collect the claim of the Singer Manufacturing Co.

The accused then took the stand in his own defence. He admitted that the Iroquois Rubber Co. had no factory as yet, but were making goods in the factory of the North American Rubber Co. He claimed, however, that the Iroquois company had built a factory, not yet in running order, and that he was their manager. Cross examined, he said he did not know from whom ground for the factory had been bought, that they had no deed to the factory site, that nobody had been asked for permission to build upon their land. He could not recall, without reference to their books, the names of any parties to whom their goods had been shipped, though he claimed that such shipments had been made and that the goods had been sold at very low prices. He said that Joseph W. Elberson and himself were not now the best of friends. The stationery of the Iroquois Rubber Co., he said, had first been sent out in July, 1895. He said that he had consulted a lawyer as to whether any law would be violated by using the style of a corporate title when no such corporation existed, and had been told that it would not be illegal. Regarding the names on the printed letter-heads of the Iroquois Rubber Co. the witness refused to give any information. On a letter dated August 21, 1895, these names were J. M. Hayes, president; E. S. Washburne, general manager; G. H. Scovill, superintendent.

The jury deliberated but a few minutes before returning a verdict of guilty, and the court imposed the highest penalty under the law. The sheriff at once started with McDermott to Riverhead, where the jail is located. On Friday evening, February 28, McDermott returned to his home at Setauket, having given bail in the sum of $4000. His release from jail was under a stay of sentence under a motion for an appeal.

* * *

ON January 29 last the Singer Manufacturing Co. transferred their claim against the Iroquois Rubber Co. to Frank H. Tobey, who employed Booraem, Hamilton, Beckett & Ransom to bring suit in the New York supreme court against C. J. McDermott, manager of the Iroquois Rubber Co., so-called, Joseph W. Elberson and the North American Rubber Co., for the recovery of thirty-two sewing-machines and accessories, or their value in money (about $1000), with $250 additional for damages and costs. On January 31 a writ of replevin was issued to the sheriff of Suffolk county and personally served upon Elberson and McDermott, after which the sheriff took possession of the machines in the factory of the North American Rubber Co. A few days later the property was released on bonds for $2000 signed by Benjamin F. Jayne, of Brooklyn, doing a coal business in New York, and a director in the North American Rubber Co., in which he holds $7500 worth of stock, and by George E. Hawkins, a former sea-captain who for twelve years past has been a rubber-worker at Setauket, being now a foreman in the tire department of the North American Rubber Co. The suit is still pending. It has been brought in New York county because the rubber company named have an office in this city—at No. 81 Reade street.

The salient points in the bill of complaint in this suit are:

1. That it was claimed by McDermott, at the time credit was sought by him on October 18, 1895, "that the said Iroquois Rubber Co. was a corporation duly organized as such and engaged in the business of manufacturing rubber clothing and bicycle-tires at Setauket, L. I., that the said Iroquois Rubber Co. was the owner of certain large factory buildings at said place, in which such manufacture was then going on, of various machines and machinery therein employed, and of various large lots of stock and rubber then on hand; that said Iroquois Rubber Co. was financially reliable; that it had then plenty of work to be done in its factory, and would soon have work enough on hand for the use and employment of 100 sewing-machines, and a corresponding number of operators; that the defendant Elberson was a very wealthy and reliable man, and was financially aiding said company, and was its president and chief head, as well as its principal stockholder, and that the defendant McDermott was the manager of its business, and then engaged as such and a stockholder therein, and that the said Iroquois Rubber Co. then had employed in its said factory buildings numerous operators engaged in the manufacture of its goods."

2. That as a matter of fact "the Iroquois Rubber Co. did not in fact own, nor has it ever owned, any factory buildings, large or small, or any other buildings, or any stock or machines or machinery, or any property whatever; that it was not, nor has it ever been, engaged in the manufacturing or any other business; that it never employed, either then or at any other time, any operatives or workmen; that it never had any work on hand, or any occasion for the use of any sewing machines; that the defendant Elberson was not and never has been president, head, or stockholder, nor was the defendant McDermott ever a manager or a stockholder of said Iroquois Rubber Co., and that in truth and reality the said Iroquois Rubber Co. never existed in form or in fact as a corporation or otherwise."

The paper then sets forth that the only reason for the existence of the Iroquois Rubber Co. was to serve as a blind for other concerns in Setauket, by means of which a conspiracy was organized to buy goods on credit with no intention to pay for them, but with the idea of resisting payment.

One of the exhibits in this case is a check signed "North American Rubber Co., J. W. Elberson, president," to the Singer Manufacturing Co., in payment of a small bill rendered to the Iroquois Rubber Co., by which it will be attempted to prove the close relation of the two concerns.

No complete record of the creditors of the Iroquois Rubber Co. has been compiled. It was reported that the Wheeler & Wilson Manufacturing Co. and the Standard Sewing Machine Co. were creditors of the concern, but this was denied by the former, while at the latter's New York office it was stated that if any Standard machines had been sold to McDermott it must have been from Philadelphia. Among other creditors named are the Worthington Pump Co. (New York) said to have been caught for $500. The McNabb & Harlan Manufacturing Co., manufacturers of piping in New York, are also reported to be creditors.

* * *

THE North American Rubber Co. were incorporated under the laws of New York state on November 30, 1894, "to deal in

handle, and manufacture all kinds of rubber goods, crude rubber, and rubber compounds, and to reclaim and develop rubber waste and waste rubber." The charter stated that the location was to be Setauket, the term of the charter fifty years, the amount of the common stock $300,000, and the number of directors five, each to hold not less than five shares of stock. The directors named in the charter were Benjamin F. Jayne, Brooklyn (5 shares); Joseph W. Elberson, Setauket, L. I. (5 shares); Herbert S. Barnes, No. 41 West Fifty first street, New York (5 shares); Acton Civill Bassett, No. 11 West Thirty-first street, New York (5 shares); Henry C. Beadleston, No. 25 West Fifty-first street, New York (5 shares). In one of the papers filed in the suit referred to this company is referred to as a reorganization of the old Brookhaven Rubber Co., and in another Benjamin F. Jayne states that he held at first 80 shares of stock, but now holds 75, which he values at $75 per $100 share. A little more than a year ago sensational newspaper stories were printed on the occasion of the United States Rubber Co. closing the manufacture of rubber shoes at Setauket and withdrawing from all connection with it. The North American Rubber Co. was announced almost immediately afterward, and for some time have been advertising a new line of bicycle-tires.

The Liberty Rubber Shoe Co. filed articles of incorporation in New Jersey about the beginning of 1895, stating their object to be "to manufacture rubber fabrics and sell the same, and manufacture, buy, and sell rubber boots and shoes." The amount of capital mentioned was $400,000, and the incorporators were Benjamin F. Jayne, Edwin Elberson, of New Brunswick, N. J., formerly connected with the Brookhaven Rubber Co., and Edwin C. Phelps, of Jersey City, doing business in New York. During the summer they began the manufacture of shoes. The New York store and office of both the concerns named is at No. 81 Reade street.

The stationery of the Iroquois Rubber Co. intimate that they were manufacturers of druggists' sundries in large variety, together with stationers' and dental rubber, dress-shields, etc.

Setauket is a small village about seventy miles from New York, a mile from the Long Island railroad, and containing no industries other than the rubber factories. These give employment to the greater part of the population.

* * *

AN INDIA RUBBER WORLD man interviewed Edwin Elberson, treasurer of the Liberty Rubber Shoe Co., at the offices of that company, and the North American Rubber Co., No. 81 Reade street, New York, on the subject of the proceedings against C. J. McDermott, above referred to.

"I don't know anything about it," he said. "I don't know McDermott, or anything about him. He was in this office one day several months ago, which was the only time I ever saw him. What he has been doing since I don't know. Nor do I know anything about the Iroquois Rubber Co. We have had inquiries about them here at our office, but haven't been able to give any information. My brother, who stays out at Setauket, where the factories are, has never mentioned them to me."

Benjamin F. Jayne, when seen at his coal-office, No. 66 South street, New York, said to an INDIA RUBBER WORLD man that while a director in the two rubber companies at Setauket, and president of the Liberty Company, he had no personal knowledge of the matters above referred to. The management was in the hands of Mr. Elberson, and he had signed papers at the latter's request. He had become interested in the rubber companies through selling coal to them.

PROGRESS AMONG THE NEW RUBBER FACTORIES.

A FEW months ago rubber machinery was put into the works of the Chicago Electric Wire Co., Wilmington Del., for the purpose of making compounded rubber for wire covering. It was soon found however that the wire business did not take all the product of the rubber mill and the company began looking about for other novelties. Mr. H. B. Cobb, the general manager of the company, began to experiment upon the manufacture of garden hose. As he had never seen ordinary rubber hose made he designed a process of his own, utilizing machinery that he already had on hand and designing some other for certain processes that seemed to him necessary. The result was not only a new process but a new product. By means of this process the hose is made entirely by machinery and as it is turned out continuously it is possible to make it in lengths a mile long. For convenience, however, it is run out in lengths of 500 feet. When samples of this hose were shown to various dealers they were at once received with favor, and the company almost before they knew it found themselves making 1500 feet a day. Orders however have come in so rapidly that additional machinery has been contracted for, and the business of wire covering has simply been crowded out. This machinery, which will soon be in place, will enable the company to turn out 25,000 feet of hose a day. A further development in the new process will be the manufacture of bicycle tires in a manner entirely different from any now in use. It is probable that a new plant will be put in operation expressly to manufacture tires, the plan being to have them ready for next year's business. Mr. Cobb has applied for and been granted patents covering machines, articles of manufacture and processes and is now taking out foreign patents also. The marketing of the hose has been undertaken by John E. Rhoads & Sons of Philadelphia, who are well known as large distributors of mechanical goods.

THE READING RUBBER TIRE CO.

A BRIEF note in the last number of THE INDIA RUBBER WORLD spoke of the starting up of the plant of the Chauncey Rubber Co., Reading, Mass., under the name of the Reading Rubber Tire Co. The gentlemen at the head of the enterprise are Messrs. Barrows & McCune, the former of whom was one of the original incorporators of the Chauncey Rubber Co., while the latter is a well-known bicycle manufacturer. The plant in Reading is a large one, comprising sixteen different buildings. The power is furnished by a large Corliss engine, three seventy-horse-power boilers, and a full complement of washers, grinders, calenders, vulcanizers, and general rubber machinery. The actual floor space of the buildings is over one and a quarter acres. It has a complete electrical plant of its own and is in every way well fitted as a bicycle plant. The company have started making the "Alligator Tread" tire for bicycles, and also the "Perfect" carriage tire for vehicles. The Aligator is a hosepipe tire that is said to be a good one, and the new company have orders far ahead of their present production.

KOKOMO'S NEW FACTORY.

THE Kokomo Rubber Co. (Kokomo, Ind.) is the subject of a two column article in the local paper. The article is very well written and is interesting, particularly to those who are unfamiliar with the manufacture of rubber goods. As a matter of fact, however, there is very little of it which would be new to the readers of THE INDIA RUBBER WORLD. The interesting

portions to them are contained in the references to the plant and machinery. For example the steam plant consists of two 100-horse-power boilers while the power is supplied by a 200-horse Corliss engine. There is in addition a large washer, four grinders, a calender, vulcanizers, etc., etc. The rubber machinery was manufactured by the Farrel Foundry & Machine Co., Ansonia, Conn. The superintendent of the plant is Mr. A. J. Whisler, who was formerly superintendent of the Chicago Rubber Co. The grinding and calender room is under the care of John Neary, who is said to be an expert of twenty years standing in this line. The Kokomo Co. are manufacturers of bicycle tires, both double and single tube.

NOT THE NORFOLK.

THE following item has been going the rounds of the daily press. "The Norfolk Rubber Company has leased for a term of five years the plant in Hyde Park, situated on the Neponset river, formerly used as a starch factory. The buildings are spacious, the main structure being of brick and wood, and 25 by 45 feet in size. The property is owned by the Hyde Park Water Company, into whose possession it came after the failure of the starch concern. The rubber company is now putting in machinery, engines, boilers, etc., preparatory to an early start. It is understood that the product of the manufactory will be principally gossamers." Treasurer Eustis of the Norfolk Co. said that there was absolutely no truth in this report.

PHILADELPHIA'S NEW RUBBER SHOE FACTORY.

THE announcement that the new rubber shoe factory on the Schuylkill river was to bear the name of the Penn Rubber Co. seems to have been a bit premature. The work is being now rapidly pushed by the firm known as George Watkinson & Co., who are described as manufacturers of rubber boots and shoes. The letter heads bear the names of George Watkinson, Irving Watkinson, together with R. H. Gardner, superintendent. During the past month things have moved with the energy that is characteristic of Mr. Watkinson and his able lieutenant. Not only are the factory buildings fast assuming ample proportions, but a long row of brick tenements, with the inevitable white marble doorstep in which the Quaker City delights, are being built for the employees.

AT THE AKRON INDIA-RUBBER WORKS.

REPORT comes from the busy city of Akron, Ohio, a rubber center of importance, that Mr. Frank Reifsnider, manager of the Akron India Rubber Works, has severed his connection with that company. It is gossipped that he will start a new rubber factory in Akron ere long.

A NEW FACTORY FOR LEOMINSTER.

MR. W. W. WILDER of the Hudson Rubber Co., Hudson, Mass., is said to be organizing in Leominster, Mass., a stock company here for the manufacture of cravenettes, mackintoshes, etc. He is now manufacturing these goods in Hudson, but as his shop is small and his capital limited, Clinton, Mass., has made him an offer to locate there, but he will probably locate in Leominster, if he is able to form a company here. He wants a stock company with a capital of $3000 outside of the plant, all of which is said to have been subscribed.

It is reported that Mr. Wilder has a process for making rain proof goods that are fully equal to cravenettes.

McCARTY'S NEW RUBBER FACTORY.

SEVENTY tons of machinery for the new rubber factory of Mr. McCarty were carted from the depot yesterday.—*Phœnix*, Bristol, R. I.

PICTORIAL ADVERTISING.

AN advertising expert who has written a great deal on the matter of advertising, and who is considered a pretty good authority on the subject, is a great advocate of pictorial advertising. He says nothing else attracts the attention so quickly, but at the same time he says: "Put as much of your advertising into your picture as you possibly can. Do not get your picture so remote from the thing you are advertising that it requires the imagination of a Jules Verne to associate the two. Get so much advertising in your picture that even if people do not stop to read your story, they will find out something about you and get an impression that will be lasting."

If he had waited a little while before writing this excellent piece of advice, he would have found a fine illustration of this principle in the full page advertisement of the Wales-Goodyear Company, which is called "The Man Who is Up on Rubbers." There is a man resting on a pyramid of Wales-Goodyear Short Boots, Lumbermen's Perfections, Arctics, Cloth Top Normandies, and Children's School Overs and School Goodwins. There is a picture that everybody will stop to look at and it is so full of Wales Goodyear rubbers that before you know it you have swallowed a whole catalogue.

FAILURE IN THE BALTIMORE TRADE.

IN Baltimore, on February 24, the firm of McDonnell, Payne & Co., doing a general rubber-goods business, made a deed of trust for the benefit of creditors to James W. McElroy, who gave bond as trustee in the sum of $100,000. The assets consist of stock appraised at $34,000 and book accounts estimated to be worth $20,000. The liabilities amount to about $60,000, including $43,000 owed to the United States Rubber Co., $11,500 to Baltimore banks, and $3000 to the Pacific Rubber Co. The failure is attributed to general depression in business, and the hope is expressed by the firm that a settlement may be reached on terms which will permit of a resumption of business, but the hope is not shared by the experts who have looked into the affairs of the company. The failure was precipitated by the refusal of the banks to renew the company's notes.

The firm, which began business about three years ago, is composed of Eugene McDonnell, the financial manager, and George H. Payne and P. T. Fogarty, experienced rubber-men. About eight months ago they changed their location from No. 16 West Baltimore street to No. 26 Hanover, in order to be nearer the center of the wholesale district. They have had seven travelers on the road, and THE INDIA RUBBER WORLD'S correspondent in Baltimore reported the firm, at the beginning of the year, as doing a good business, with sanguine expectations for an increase this year. It has been asserted that selling at too low prices was the cause of the trouble.

NEW PROCESS FOR WATERPROOFING.

UNDER a patent lately granted in Germany and Great Britain to V. Hendricks, of Hückeswagen, Prussia, cloth for the manufacture of boots and shoes is treated with a solution made by mixing alum, sugar of lead, and tannin, and allowing the precipitated sulphate of lead to settle. Cloth so prepared is stated to be waterproof but permeable by air. To cause the cloth to retain its properties it may from time to time be dipped in the solution or the latter applied by a brush.

THE MONEY QUESTION.

(*Continued from page 160.*)

that the people make known their money requirements through the banks. The banker is, therefore the only man in a position to decide promptly and intelligently as to whether or not money is required for legitimate business transactions; and not until we secure automatic adjustment of currency issues through the banks, can we hope for that even course of business which is so indispensable to peace and prosperity.

"To the student of the subject who has no selfish interest to serve and no pet theory to uphold, the way is so plain that he cannot go wrong; and to the man who knows the American people and has learned their sterling honesty, their love of country, and their ardor for the right, there can be no fear of the final issue. Time and teaching are the needful things, and the lesson to be learned is so simple that it can be written in a few sentences:

"Retire the government's fiat money, which acts as 'an endless chain' in depleting the Treasury gold reserve; make it possible for the banks to issue currency at a slight profit above the known cost; require each of the banks, instead of the government, to redeem its own notes in gold on demand; and finally, give national banks the right to establish branches wherever they may be needed. Do these things, and the people will have made a bargain with their bankers the benefits of which will be simply incalculable!"

The second paper is by Mr. J. Selwin Tait upon the subject of branch banks. In it he says: "To the uninitiated it may seem a matter of small moment whether the country's banking is done by several thousand separate institutions—national and State—or by a small number of banks with a large number of branches, provided that both systems are equally safe; and yet the independent bank of one roof and the many roofed or branch bank are so widely different in their results that the change from one to the other would mean the releasing of hundreds of millions of dollars of cash reserves, and might be made to mean the changing of our New York money market from a European plaything, knocked hither and thither at London's behest, to a great financial potentiality, which in its turn could make a bold bid for the financial supremacy of the world.

"A forcible illustration will be found in a comparison of the average amount of capital and surplus of each national bank with that of each English branch bank. The 3712 national banks of this country have an aggregate capital and surplus of $903,000,000, or an average of $240,571 per bank. Taking the ten joint stock banks of London which have the largest number of country branches, it will be found that they have a combined capital and surplus amounting to $99,366,250. This total divided by their number of branches (1343) gives $74,000 of capital and surplus to each branch. From this comparison it is clear that, were the same amount of working capital and surplus employed under the branch system, it would be sufficient for 12,127 banking establishments instead of 3712. It is, therefore, apparent that we have sufficient banking capital already in use *to increase the number of our banking establishments three hundred per cent.*, if employed under a proper system. Adding together the capital and surplus needlessly locked up by the national and State banks, and the excessive reserves which the system of isolated banks renders imperative, we have the astonishing spectacle of a country which needs every dollar of its capital locking up $750,000,000 more than is necessary in one form of business alone. Such a condition of affairs is a reflection upon the intelligence of our people.

"If it be feared that the branch bank system would cause a dangerous concentration of capital and monetary power in the large cities, it may be replied that the same kind of argument could have been used for forbidding the building of trunk lines, on the ground that, by furnishing undue facilities for travel, they were calculated to remove our country residents into our cities, and so concentrate population there. Instead of this, railway trunk lines have been the only possible agents for the adequate opening-up of the country. And so it is with the branch banking system. It mobilizes the country's capital, and maintains that regular ebb and flow of money between the large cities and country towns which the exigencies of both demand. Indeed, it is apparent at this late hour of the nineteenth century that, instead of such establishments having an undue weight in the large cities, an influence of the kind might be advantageous to balance the over preponderance of capital and the power it represents, now in the hands of certain private bankers. We have recently witnessed a spectacle of the kind, in which it seemed for a time that a single private banker of the city of New York could practically dominate all the banks of the country and virtually control all the available gold,—a most undesirable condition of affairs, which does not exist in any other great country. I think that any dispassionate reader, after studying the claims of the branch bank system will agree that, when President Cleveland recommended the formation of branch banks in his last message, he did an eminently wise thing."

MAY CONTROL THE MANUFACTURE OF SINGLE-TUBE TIRES.

COL. THEODORE A. DODGE, President of the Boston Woven Hose & Rubber Co. has purchased in his own right the Tillinghast patents, said to cover the processes now used in the manufacture of hose pipe tires. The Pope Mfg. Co., the Hartford Rubber Works, the B. F. Goodrich Co., the Boston Woven Hose & Rubber Co., the New York Tire Co., the Hodgman Rubber Co., and others have already taken out licences to manufacture under these patents.

THE HODGMAN RUBBER CO. IN CHICAGO.

THE Hodgman Rubber Co. have opened elegant offices in the new Atwood building, corner of Clark and Madison streets, Chicago. The offices for general business will be in charge of Mr. Silas H. Jenkins, while the tire department will be cared for by Mr. F. A. Winchell. The Hodgman Co. will also carry a large stock of the Hodgman tires in Chicago.

THE FORTIETH ANNIVERSARY OF A RUBBER-MAN.

Studley, Theodore F., clerk, 100 Liber 3, h. 287 Navy, Brooklyn.

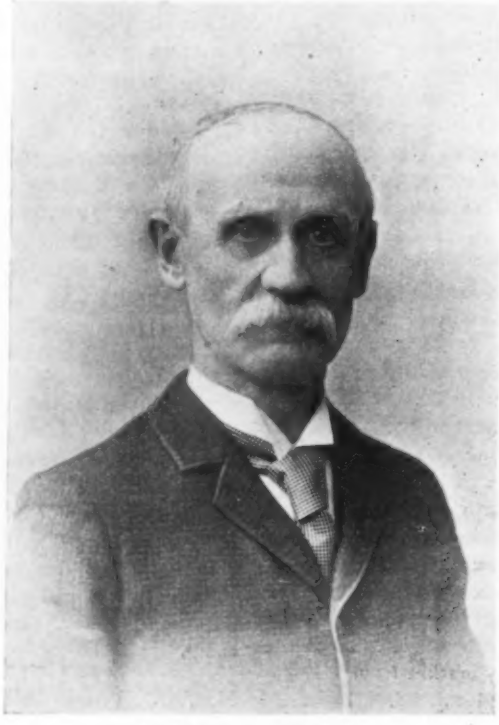
THIS was the first record in the New York City Directory in 1857 of a name which has since grown widely familiar in the India-rubber trade—the name of a gentleman who, on the date of this issue of THE INDIA RUBBER WORLD, will celebrate the fortieth anniversary of his connection with the trade. When Theodore E. Studley left his home at Worcester, Mass., to seek his fortune, it was to take a position in the New York store of the New Brunswick Rubber Co., already an important concern in the rubber-shoe trade, under the original president, Johnson Letson. He entered upon his duties there on March 10, 1856, at which time the store (No. 100 Liberty) occupied a site which is now in the middle of Church street. The business was not confined to footwear, but embraced a general line of rubber goods, and the house was considered the most important one in that line.

The other rubber stores in town, as a rule, carried only a single line of goods, and perhaps only the products of a single mill. The following list of rubber houses in New York, copied from Wilson's "Business Directory" for 1856, may help to give an idea of the situation at the time of Mr. Studley's arrival in town:

Beacon Dam Co., 63 Maiden lane.
Bishop, Samuel C., 181 Broadway.
Congress Rubber Co., 23 Cortlandt.
Davenport, Henry, 337 Pearl.
Day, A. G., Caoutchouc Co., 39 Maiden lane.
Day, H. H., 23 Cortlandt.
Goodyear, H. B., 39 Maiden lane.
Goodyear's India Rubber Glove Manufacturing Co., 36 John.
A. S. Gatcholl.
Goodyear's Rubber Emporium, 159 Broadway.
Hodgman, Daniel, 27 Maiden lane and 59 Nassau.
India Rubber Comb Co., 44 Cliff.
Newark India Rubber Manufacturing Co., 57 Maiden lane.
New Brunswick Rubber Co., 105 Cedar and 100 Liberty.
New England Car Spring Co., 104 Broadway.
New York Belting and Packing Co., 6 Dey street.
New York Rubber Co., 31 Liberty.
Novelty Rubber Co., 39 Maiden lane.
Poppenhusen & Konig, 44 Cliff.
Union India Rubber Co., 41 John.
Ward & Sinclair, 102 Broadway.

In 1857 the New Brunswick Rubber Co. disposed of their general business, confining themselves thenceforth to the sale of their own products—boots and shoes. Their stock was bought by the manager of the store, H. G. Norton, sometime of the Union Rubber Co., who continued the business at No. 100 Liberty street. Mr. Studley remained with the house, and in 1860 became a partner, the firm style being H. G. Norton & Co. This arrangement lasted for twelve years, during which time an important feature in the business of the firm grew out of the organization of the National Rubber Co., at Bristol, R. I. The nucleus of this company was the old Providence Rubber Co., controlled by Bourn, Brown, and Chaffee, and the suggestion of the Bristol enterprise came from Augustus O. Bourn, son of an above-named partner, and still engaged in the rubber-shoe industry. In addition to the Providence firm, the new company embraced H. G. Norton & Co., who became the general selling-agents; Richard Levick, of Philadelphia, who handled the goods of the new factory in his own city; and Bart & Hickcox, of Cincinnati, at that time probably the most important rubber house in the west, who became distributers in that section of the Bristol goods.

In 1872 Mr. Norton retired from business, and five years later he died. In the year named the general business of the firm was sold to the Rubber Clothing Co., who removed at the same time to No. 341 Broadway and took the name Goodyear Rubber Co.* The president of this company was and is Frederick M. Shepard, once a fellow employé with H. G. Norton, of the old Union company. The druggists'-sundries department of the Norton business was continued by Mr. Studley, in connection with William H. Sargent, who was already in the sundries trade, with Mr. Norton as a special partner. In 1876 the business of Sargent, Studley & Co. was liquidated, and on January 1, 1877, Mr. Studley accepted a proposition from the Goodyear Rubber Co. that he take charge of their down-town branch. This connection has since continued. At first Mr. Studley found himself, under the new arrangement, at No 150 William street. He removed successively to No. 114 William, to No. 57 and then to No. 49 Maiden lane, and finally, in 1891, to No. 17 Murray street.



THEODORE E. STUDLEY.

During the forty years whose record is thus briefly outlined Mr. Studley has kept closely in touch with the growth of the various branches of the India-rubber trade, his acquaintance embracing both the products of the factories and the men who have made the trade what it is. He has been particularly well informed on all matters pertaining to the sundries trade, and is an enthusiast on the growing value and importance of the hard-rubber industry.

The City Directory long ago ceased to record Mr. Studley as a resident of Brooklyn. Since he first made his home in New York he has witnessed a degree of growth of the city no less wonderful than that of the rubber industry. Yet he lately declared to an INDIA RUBBER WORLD man that he felt no older than at the beginning of his life work. There is one incident of Mr. Studley's experience in rubber which antedates what has been noted above.

* The history of the Goodyear Rubber Co. was treated at some length in THE INDIA RUBBER WORLD of November 10, 1894.—THE EDITOR.

"When I became ten years old," said he, "and was a mere school-boy. I began to go into a retail shoe store in Worcester on Saturdays, to earn a little money by cleaning the old-fashioned rubber shoes imported from Pará. They used to come filled with rice-husks, and, before they were offered for sale, had to be emptied and turned inside out and scraped with a knife. Thus I might claim to have been in the rubber trade since my tenth birthday."

But just how long ago that may have been is a point upon which one will get no very precise information from the appearance or manner of this veteran rubber-man.

* * *

SOME OF THE RUBBER-MEN I HAVE KNOWN.

LOOKING backward to the first decade of my connection with the rubber trade, I recall the personalities of those with whom my business brought me into frequent contact, and most of whom have "gone over to the majority," though they were known to many who are still "in rubber." Among them I especially note Messrs. Letson, Acken, and Howell, of the New Brunswick Rubber Co.,—clean, solid, and genial; Messrs. Lee and Porter, of the New York Rubber Co.,—the one keen and aggressive, whose only regret in the early war days of 1861 was that he had not been born in Massachusetts, and the other suave, kindly, and comfortable, but withal keenly alive to the good side of the balance-sheet; Mr. Hodgman, the courteous gentleman, unconsciously giving the impression that workaday life was not his ideal; Mr. Williamson, of the Novelty Rubber Co., - a man, who, take him all in all, we "ne'er shall see his like again"; Messrs. Cheever, Roby, and Richards, of the New York Belting and Packing Co.,—a trio never equalled in their ability to command and achieve success; Henty Davenport, the original elastic band manufacturer; Henry G. Tyer, the originator of rubber stopples, and the father of the Congress Arctic; Messrs. Norton and Shepard, graduates from the Union Rubber Co.,—than whom no two men have done more to advance the introduction of rubber goods in this country; Messrs. Poppenhusen and Koenig, to whom the world owes a debt it can never pay for their persistent faith and works in perfecting the processes of manufacturing hard rubber; Austin G. Day, whose services in the same line have not yet been estimated by the general trade at their true value; Mr. Schlesinger, for so many years the able superintendent of the works of the India Rubber Comb Co., after years of intelligent labor in the Beacon Dam and American Hard Rubber companies (which were the predecessors of the India Rubber Comb Co. in hard-rubber sundries); Messrs. Nathan Southwick, B. F. Breeden, Christopher Meyer, Leverett Candee, and Carew, of the rubber boot and shoe companies; Henry B. Goodyear (brother of Charles) never in the trade, but active in his own way outside of it for the interests of hard rubber; Messrs. Bourn, Brown, and Chaffee "outsiders" in those early days, but as founders of the National Rubber Co., in connection with my old firm, they touch me closely; Mr. Allerton, of the India Rubber Glove Manufacturing Co., full of the belief that rubber gloves and mittens would yet "rule the roost." Other contemporaries were Samuel C. Bishop, father of the Gutta-percha interest here; Mr. Gatchell, the "rod and gun" man of the trade; C. M Clapp a man of war and at his best in those days; Robert D. Evans, at one time his partner, now high up in the big United States Rubber Co. My house was also in close touch with Bart & Hickcox, of Cincinnati, the pioneers of the rubber trade in the West, and Richard Levick, of Philadelphia, severely conservative. John Thornley, also of Philadelphia, was "a fine old English gentleman, one of the olden time."

These, and such as these, laid the foundations of the rubber business in America, upon which the present generation is building so extensively and to its great profit.

ONE OF THE VETERANS.

DEATH OF JOHN F. HOLT.

MR. JOHN F. HOLT, for many years superintendent of the Woonsocket Rubber Co., one of the pioneer rubber manufacturers of the country, died February 17 at his home in Woonsocket, R. I. Mr. Holt was born February 14, 1824, in Scotland, remaining there until his tenth year. He began to work at the age of nine years at a cotton factory in Glasgow, and later continued the same employment in Manchester, England. He left the old country for America in 1857, and came to Providence, where he obtained employment in the works of the Providence Rubber Co. This company was then under the management of E. M. Chaffee of whom he learned a great deal about the rubber business, and after fifteen years became superintendent of a department. Later when the boot and shoe department was taken to Bristol he set up the machinery and superintended the manufacture of these goods. In 1867, Mr. Holt went to Woonsocket as general superintendent of the Woonsocket Rubber Co. He remained in this position for twenty years, retiring in 1887 from its active management, but retaining his interest as a director and one of the principal stockholders. Since his retirement from active business, Mr. Holt has spent considerable time in traveling, and it was while in England a year ago that the first symptoms of physical weakness occurred, in the form of a paralytic shock. He recovered from this, however, apparently, and was in good health until the last of December when he was again taken with the illness from which he never recovered.

JOHN F. HOLT.
(By Courtesy of the Woonsocket Call.)

Mr. Holt was an exceedingly generous man, contributing to various charities many thousands of dollars. He was a self-made man, starting in life without a penny and amassing a fortune, which is estimated from one-half to three-quarters of a million.

* * *

PATRICK NUGENT died at Newark, N. J., on February 14, aged seventy years. For many years he was in the employment of the old Newark Rubber Co. and received a large salary, on account of possessing what was then a great secret, the knowledge of how to produce a good varnish for rubber boots and shoes.

* * *

OTTO JULIUS EGGERS died in Brooklyn, N. Y., on February 23, at the age of fifty-two. He was the founder of the firm of Eggers & Heinlein, importing merchants in New York, who were at times considerable receivers of Central American rubbers. He had been a member of the Maritime Exchange ever since its organization.

INTERVIEWS WITH SUCCESSFUL EXPORTERS.

A LETTER written in French from a South American city lay the other day before the manager of a rubber-factory located not far from New York, who was writing in reply that work had already been begun upon the goods asked for in the letter. "Such orders are not unusual with us," the manager said to an INDIA RUBBER WORLD man. "In fact, we are devoting no little effort to the building up of an export trade, and we find that it pays. We have not made it a point to advertise to our competitors all that we are doing, but for a dozen years we have been carefully cultivating new fields for an outlet for our goods. One point you can make at the outset—though I believe it has been made before in THE INDIA RUBBER WORLD—is that it requires energy, guided by good judgment, to sell goods in other countries, the same as in the United States, and that it is folly for any manufacturer to depend upon congress or the consular force to find a market for him abroad."

"In what foreign markets have you been successful?" the rubber-man was asked.

"In Great Britain, to some extent, and in several countries on the continent, but more particularly in Germany, among Europeans. Then we have some good customers in South Africa. We have done well in the Argentine republic and in Australia, and have lately opened correspondence with parties in Japan. For years we have had a good trade with Canada, but none to speak of with Mexico. As to the future development of trade, the best prospects appear in Japan and Cape Colony."

"You must find some special methods necessary in dealing with these foreign markets?"

"We have to study the particular demands of the people whose custom we want, whether at home or abroad. We receive some orders from buyers direct, but more come to us through the exporting houses in New York, of whom there are about twenty-eight on our list. We have made it a practice to cultivate merchants of this class, with the result that when they receive orders from their correspondents abroad for anything in our line, they will remember us in placing the orders. Several of these houses now have good men traveling in South America, Africa, and elsewhere, exhibiting American productions and prepared to take orders for them, and some of these travelers carry samples of our goods. We do not allow commissions to these export merchants, though our bills are based upon special discounts, which enable the merchant to charge the buyer a commission. Goods sent through such channels are paid for, practically, on delivery on board the steamer. In case of sales direct we expect the buyer, until his business responsibility is demonstrated, to open a credit in New York, upon which we can draw at the time of shipping goods."

"You have mentioned no risks in your foreign trade."

"Because there have been none to mention. We have never lost a dollar through failure to collect bills on foreign orders. Of course, ordinary prudence must be exercised in the acceptance of orders, the same as in the home trade. Orders have sometimes reached us from strangers —once as far away as Bombay—unaccompanied by satisfactory references, and to these we have responded with a request for better guarantees, which generally has closed the correspondence."

"How far do questions of price enter into your trade abroad?"

"To a much slighter extent than you might think. To begin with, some of our goods are of a quality not equalled abroad, and these sell without reference to the prices of foreign competitors. This is not spoken in the sense of boasting of the products of our own factory, but only as an illustration of the superiority of American goods in our line. One satisfactory feature in our export trade is that, when we have once secured a customer and our goods have proved satisfactory, he is not likely to desert us in favor of a competitor merely to get an extra discount. We have been selling direct to one German house for years, and since our initial transaction there has never been a question raised as to prices. When one considers the price-slashing competition all the time going on at home, it is easy to see the desirability of such customers as our German friends. On the whole, we have been fortunate in meeting abroad a demand rather for good quality than for low prices. It is a fact that we are shipping in respectable volume to South Africa a line of goods for which there is no demand in the United States on account of the high prices."

Two other points touched upon in this interview were the importance of the proper packing of goods for export and the worthlessness of most so-called advertising mediums, printed in the United States in foreign languages and alleged to circulate among buying classes abroad.

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E. H. PAINE, general sales-agent for the United States Rubber Co., New York, in a recent chat about the use of American rubber shoes abroad, said the goods that we send to London are mostly Woonsockets and go to Mr. John Rye, formerly an American who was an intimate friend of E. H. Cutler. Of these many are reshipped to Australia. These as a rule are regular American goods made on American lasts and not changed to suit a foreign market. The German trade is one that is growing rapidly, although their leather shoe is very hard to fit. It is very broad and full and excedingly heavy and clumsy. There is in both England and Germany a certain prejudice against American rubbers, and indeed against all rubbers, the people preferring to wear heavy leather shoes to keep out the dampness. This feeling however is rapidly lessening, and there is no doubt but that American goods are obtaining a most substantial foothold over there. The United States Rubber Co. has in Hamburg a jobber who is very successfully marketing their goods in Germany, Austria, Austria-Hungary and Belgium. The promise for a large business in these countries for the comming season is very flattering. The fact that American leather shoes have at last become popular abroad is giving quite

an impetus to rubber shoes. Great Britain buys a few rubber boots, but almost all of these are with leather soles. One enterprising man has been working Switzerland for seven years now and has established a very fair market for shoes. Very few boots are called for there, but arctics are growing more and more popular. In fact the Swiss are beginning to see that this shoe is especially adapted for their country. Holland at the present time buys no rubber shoes at all. France buys a great many rubber shoes ordering them through Switzerland, and sometimes through Belgium, because of customs regulations. Denmark takes increasing lots of rubber shoes, Belgium also takes rubber shoes and a few arctics. Neither Spain nor Portugal buy American rubber shoes to any amount. Turkey buys some rubber shoes which are chiefly sold in Constantinople, but are either of the German or Russian style. Japan imports a few rubber shoes for the use of foreign residents. There is also the regular Chinese rubber shoe known as the Nagasaki slipper, which goes to China and is worn by the better class of natives. No rubber shoes go to India and very few go to Cape Town or to South Africa. South America is buying a very few but the demand is slight. There are some rubber shoes bought by importers in New York which undoubtedly go to South America, but the importer wants the cases delivered to him unmarked and is unwilling to tell their destination. Cuba takes very kindly to American rubber footwear and does not ask for special styles of her own. Hayti is a good market for tennis shoes, buying lots of them. Mexico buys a very light shoe with an extremely narrow, pointed toe. Almost all export accounts are good ones as the importers take advantage of the interest allowance and of the discounts. Where goods are ordered direct a check is attached to the order. There is no reason, as far as I can see, why in the next few years the exportation of American footwear should not grow into quite a feature of the business of the United States Rubber Co.

MR. BANIGAN AND THE UNITED STATES RUBBER CO.

THE relations of Joseph Banigan with the other members of the United States Rubber Co. have been freely discussed in the trade and elsewhere since the announcement in the newspapers of his resignation of the presidency of that corporation. In a published report of an interview with Mr. Banigan he is quoted as saying that when he became president it was under an agreement with the directors that he should serve for three years, ending on March 22, 1896, and as that date approached he had thought it proper to place his resignation in the hands of the directors, subject to their action. This was to give the board time to adjust matters and agree upon a line of action. He was further quoted as disavowing any knowledge of the dissensions in the board which were rumored as having been the cause of his retirement from office. He had of late disposed of considerable holdings in United States Rubber securities, with a view to distributing his investments, and not because of any dissatisfaction with the action of the board. On the contrary, he remained the largest individual stockholder in the company.

Some of the directors have also talked for publication, to the effect that Mr. Banigan would doubtless remain in office until the annual meeting of the company in May. As for Mr. Banigan's sale of the company's stocks, the opinion was expressed that it was not due to any unfriendliness to the company. Many persons had invested in the company's stocks on account of Mr. Banigan's connection with it, and he would hardly attempt now to tear down the value of their investments, and particularly of the value of the stocks he had just sold. It was improbable, therefore, that Mr. Banigan would engage in any new rubber enterprise opposed in interest to the United States Rubber Co.

Many of the rumors current in this connection are plainly pure matters of imagination. Such, for instance, is the report that he controls the entire output of Pará rubber, as a result of his having befriended Brazil when she was in trouble, and that he is now in a position to antagonize any other rubber interest.

The government of Brazil, to begin with, does not and never did control the rubber output any more than the negus of Abyssinia does. Another story was that Mr. Banigan controls the New York Commercial Co. and that he will enter suits against the United States Rubber Co. for not buying all their rubber from the Commercial. The latter company is controlled by George A. Alden, and when Mr. Banigan joined the United States Rubber Co. it was with the stipulation that the Woonsocket factories might continue to buy direct from Pará. This stipulation was afterward abrogated, however, and the United States Rubber factories have since bought rubber almost entirely from the Commercial company. Likewise the stories that the resignation of Mr. Banigan was due to the shutting down of the Woonsocket factories are, on their face, unworthy of consideration. All the rubber factories have been inactive to a greater or less degree of late, as is usually the case toward the end of winter.

It is generally expected that Mr. Evans, now first vice-president of the United States Rubber Co., and president of the American Rubber Co., will succeed Mr. Banigan.

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At a regular meeting of the board of directors of the United States Rubber Company held March 4, the resignation of Joseph Banigan as president was received and accepted. Robert D. Evans, first vice-president of the company, was elected to succeed Mr. Banigan. James B. Ford, who has served as second vice-president since the organization of the company, was elected first vice-president. Charles R. Flint, the treasurer, states that the business of the corporation is prosperous, and that the earnings for the present fiscal year, ending this month, will amount to about $2,750,000.

A CUT CATALOGUE.

A UNIQUE publication which has been sent out to the trade in mackintoshes, boots and shoes, and miscellaneous goods, is what is known as "A Cut Catalogue." This consists of eight pages of extremely handsome electrotypes of fashionable men's mackintoshes, six pages of equally stylish mackintoshes for ladies wear, two pages of surface goods, followed by hundreds of electrotypes of rubber boots and shoes. The last dozen pages are devoted to various pictures that are worthy the pencil of Thomas Nast. The idea of this publication is that the customers of the Boston Rubber Co., who desire to use the many handsome electrotypes in marketing of the Bell Brand Goods, may see what the company have and request them by number.

TIRES IN ST. LOUIS.

AT the St. Louis Cycle Show there were on exhibition tires manufactured by the Palmer Tire Co., Chicago, the New York Tire Co., the Boston Woven Hose & Rubber Co., the American Dunlop Tire Co., the Hartford Rubber Works Co., and the Puncture Proof Tire Co. R. L. Wasson also showed the P. & W. armored tire.

QUESTIONS AND ANSWERS IN THE RUBBER TRADE.

A FRIEND of THE INDIA RUBBER WORLD suggests that of the many questions put to it, a few be published every month, together with such replies as the editor would be likely to send to the inquirer. The first installment therefore taken at hap hazard from the letter files cover a wide range of subjects, some practical, others the reverse, is given herewith. The editor also cordially invites those who are faced daily by the perplexities incident to the rubber business to send in their special problems for solution.

WOOD PULP AND RUBBER.

CAN you tell me who prepares wood pulp for use in rubber manufacturing? For what compounds is it used?

IT is probable that almost any of the pulp factories would sell ground pulp for rubber work, although they have very little call for it. The special use that it has been put to of late years has been in a compound which was called maltha which was wood pulp and recovered rubber combined. It is also used in certain packings.

RUBBER CEMENT IN CALIFORNIA.

I HAVE read your valuable paper for some time but have not seen much about cements. I make a rubber cement for repairing cycle tires, using rubber which has been through what is called a crimping machine, and have used 63 benzine and 74 gasolene, as solvents. I have however never been able to get a really heavy cement, and there was also considerable waste. That is the solvent would not dissolve all of the rubber. Now can you tell me where I can buy rubber that will make a good heavy cement, and what other ingredients are required? Do you think that the rubber as it comes in its crude form is better than that which has gone through the crimping and washing process?

THE usual manner of making a thick cement is to take the hams of Pará rubber, and after removing the outer, dark coating, the layers are separated and soaked in naphtha until they have taken up about all they can absorb. It is then put in a muddler, a sort of revolving barrel, with arms on the inside, to break the mass up, and slowly revolved for several hours. Some manufacturers add a very small percentage of resin. This makes a very thick, tenacious cement, and the best in use. If a quick drying cement is desired some dryer, like litharge, is put in before the muddling. You may be able to buy a heavy cement that will suit your purpose, more cheaply than you can manufacture it.

THE GATHERING OF CRUDE RUBBER.

CAN you inform me if there is any recent improvement in the curing of crude rubber juice and which method is given the preference among those in use? I have relatives in Guatemala, who are about to tap for the first crop, for whose benefit I am seeking this information.

THERE is nothing really new in the manner of gathering crude rubber. The descriptions already given in THE INDIA RUBBER WORLD of the processes used in South and Central America cover the whole ground.

STAMPING ON RUBBER SURFACES.

CAN you inform us of a mixture for stamping white numbers on black rubber that will not rub off?

ONE way would be to make a thin white rubber cement with enough magnesia in the compound to cause it to dry, but in all probability the problem could be better solved by making a thick varnish using some sort of lac as a sticker. As our correspondent does not state whether the surface is one that is likely to be stretched or not one cannot give more than a general reply.

TURNING HARD RUBBER.

CAN you give us the address of some party in New York making a specialty of turning hard rubber?

THE India Rubber Comb Co., of New York, can give you full information with regard to this, as they are the largest hard rubber concern there and do all kinds of work in this line.

FLOUR OF PHOSPHATE IN INDIA-RUBBER.

KINDLY inform me who supplies phosphates for rubber compounding.

THE Bowker Fertilizer Co., of Boston, in answer to this write, "We sell to rubber companies what we call flour of phosphate, which is a phosphate of lime, for use as we understand in packing. Price by the ton is $15, in small amounts $20."

RUBBER COVERED TEN PINS.

CAN you tell me who manufactures the rubber covered ten-pin balls and pins and make what are known as the noiseless bowling alleys? I presume that these alleys are carpeted with rubber.

THE Brunswick-Balke-Collender Co., in answer to this, write that as they do not manufacture these goods they are not in a position to give the information desired. We are seeking further.

SULPHURET OF ANTIMONY.

WE have been approached by a party who desires us to put in a small plant for the manufacture of what sulphuret of antimony we use. Do you think this would be practical?

BY no means. This article is exceedingly difficult to manufacture and the successful makers of it to day have worked up through a series of experiments that have been exceedingly costly. They made in turn sulphuret that contained acid, that contained too much sulphur, that insisted on blooming, that burned up the goods, and it is only after much experimenting that they were able to strike exactly what the rubber trade wanted. A small plant for private use would in all probability go through exactly the same experience without any hope of adequate returns for such expenditure of time and money.

RUBBER CEMENT FOR PREVENTING RUST.

I WANT a cement especially adapted for coating metal to prevent rust, and also to make other substances adhere to the metal.

YOU will have to give us fuller information regarding this. If you wanted something alone to prevent rust some sort of lacquer like Zapon's would probably do, but to prevent rust and also make other substances adhere to the metal makes the problem harder. We ought really to know what the substances are. In all probability, if you will correspond with some of the large cement concerns they will tell you whether they are able to do this for you or not.

THAT RUBBER PLANTATION IN CANADA.

I BELIEVE it is an accepted fact that at one time certain Canadians started to raise the *Asclepias* or ordinary milkweed in order to secure the Caoutchouc that it contains. Can you give us any information regarding this plantation?

THIS happened many years ago. Mr. James Bennett Forsyth, and Mr. Geo. A. Alden, both of Boston, remember the samples of rubber sent from Canada, and agree that it was of good quality. Mr. D. P. Penhallow, Director of the Botanic Gardens of McGill University, Canada, seems never to have heard of the attempt for he writes as follows:

A plantation of Asclepias for the production of India-rubber, is a matter which has never come under my notice. Had such been the case, *i. e.*, had the effort been seriously inaugur-

ated, I should have heard of it. To make certain however, I have made careful inquiries of those who might be in a position to know, and all the testimony is in the same direction—to the effect that such an attempt was never made. About 1865 a suggestion was made as to the value of milkweed for the production of fiber, and specimens of fabric were produced. It may be that your information was based upon this.

THE WASHING OF CHICLE.

CAN you tell me how Chicle is washed, and are machines for this work made in the United States?

OUR manufacturers of rubber machinery make the best machines in the world for *India rubber*, but when it comes to machinery for use on Gutta percha, they are simply without any knowledge of it, and this of course for the very good reason that they have no call for such machinery. A gentleman who knows as much perhaps about Gutta percha as any one, in reply to this question says, "Chicle is washed first in the ordinary way as rubber, then to further cleanse it is heated and forced through a strainer just as they clean Gutta."

WHO SELLS CAOUTCHOUCINE?

CAN you tell me where I can purchase Caoutchoucine, and whether it is the best solvent for India-rubber?

CAOUTCHOUCINE is not a commercial article. It may easily be prepared by distilling rubber, and is a fine solvent for India-rubber but exceedingly expensive. Bisulphid of carbon is almost as good a solvent, and is more easily obtainable, while for ordinary work a good grade of naphtha is what is commonly employed.

HOSE WRAPPING MACHINES.

WILL you be kind enough to tell me who manufactures machines for wrapping lawn and garden hose?

THE only concern that to our knowledge have patterns for these machines are Webb & Watson, of East Boston, Mass., The patterns are now the property of the Atlantic Works, East Boston. Many of the large manufacturers of hose designed and built their own machines.

NON-BLOOMING BLACK HOSE.

WE want to make garden hose with a dead black finish that will not bloom. Can you give us any formula for this?

IF you can afford it, and do not use recovered rubber compound, hyposulphid of lead instead of sulphur is what you need. If, however, the compound is to be a cheap one, put some tar in it, or else crowd it with litharge and cut the sulphur down to a minimum.

WHO MAKES RUBBER COLLAR BUTTONS?

I have a sample on my desk of a soft rubber collar button, presumably for use at the back of the neck where the gold or ivory button is apt to chafe. Can you tell me who manufacture these?

COLLECTING RUBBER IN MEXICO.

A SUBSCRIBER in Mexico asks for information regarding the machinery used in treating a peculiar plant which grows in that country and from which India-rubber is produced. The plant is in the nature of a bush, and the gum is extracted by a process of mastication.

WHO SELLS PETROLENE?

SEVERAL years ago we used something that was known as Petrolene. It was like a thick, coarse vaseline, but we have no record of where it was bought, as it was then an experiment. We now want to use it in a different way and do not know where to secure it. Can you assist us?

THE Standard Oil Co., of New York, were questioned regarding this as the name seemed to point to a petroleum product, and they reply: "'Petrolene' is the trade mark of some special product of petroleum, and doubtless we manufacture and market it under a different name. A refiner in Pittsburg branded all his kerosene oil 'Petrolene.' We do know that there is a brand of petroleum jelly, or what is probably better known as Vaseline, as 'Petrolene.'"

THE O'BRIEN WATERTIGHT FOOTHOLD.

THE INDIA RUBBER WORLD is in receipt of a letter from Mr. J. F. O'Brien, written from 61 Montpelier road, Brighton, England, in which he introduces himself as the inventor of the "Invisible Rubber Shoe," that was marketed last year by the Boston Rubber Shoe Co. It seems that Mr. O'Brien has just brought out another improvement in rubber footwear, which is a perfect watertight foothold. He has formed a company in England which will manufacture and market it for the whole of Europe, He has also been granted a patent in the United States, the papers having been received in the brief time of 38 days from the date of filing, which would lead one to believe that the invention had unusual originality, to say the least. The inventor, by the way, is ready to arrange with American manufacturers to make his shoe if they are interested. Our London contemporary speaking of the foothold says:

We had a practical demonstration of its powers by Mr. O'Brien, who wore a pair of the most perfect footholds on the market, one of which he fitted his patent waist to. Having placed a small bath, containing about half an inch of water, on the floor, he placed the foot wearing the old style of foothold in the water, and imitated the action of walking for some minutes, with the result that the interior of the foothold and the sole of his boot were saturated with water. He then repeated the operation with the foot wearing the foothold to which his patent waist was attached, and although he gave it a considerably more stringent trial, when he removed the foothold not a drop of water had penetrated between the rubber and leather, conclusively proving that the difficulties hitherto prevailing have been completely overcome, and that a thoroughly satisfactory watertight foothold can now be had.

The idea of the patent is to fix a band of rubber across the foothold, which will be kept perfectly rigid against the waist of the boot or shoe by the tension of the heel strap and sufficient play is provided by a watertight bellows shape connection between this strap and the sole of the golosh, to prevent any strain being placed on the waist strap, however much the foot may be bent. This bellows arrangement contains sufficient air to allow free movement of the foot without expelling the air and consequent suction to replace same.

BICYCLE ADVICE BY "QUAD."

BICYCLE ADVICE by *Quad* is one of the most beautiful as well as practical publications that the cyclists have been fortunate enough yet to receive. It is divided into short meaty chapters, giving the reader just the sort of information about a wheel that he needs to enable him to pick out a good one. The chapters on tires, their construction, uses and type best adapted for the every day rider, are of peculiar interest as well of special value. Some eighty pages of the book are devoted to practical subjects such as the size of the balls used in the ball bearings, the size of tubing, the width of tread, the height of pedals, and the length of the wheel base, with the expressed opinions of the leading manufacturers of the country as a basis to this knowledge. The last thirty pages show more than a score of the leading bicycles of the country. The book is handsomely bound, the cover being of an ornate design in black and gold. Published by the Boston Woven Hose & Rubber Co., Boston, Mass.

THE Buffalo Mackintosh Co. (Buffalo, N. Y.) lost $2500 through damages to their stock by fire on February 17. They were fully insured.

BRIEF-ABSTRACTS OF RECENT RUBBER PATENTS.

AMONG recent patents issued by the United States Patent Office, embodying applications of India-rubber or Gutta-percha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully:

TIRES.

No. 552,722.—Fastening for Tire-Valves. George H. F. Schrader and Henry P. Kraft, New York, N. Y.; said Kraft assignor to Schrader.

In fastenings for tire valves, the tire, a valve carried thereby and having a screw-threaded shank, and the rim having a socket through which the shank passes, the socket constructed with a beveled end at the inner face of the rim, in combination with a nut screwing on the shank at the inner face of the rim, and having a tapered end entering and seating in the beveled portion of the socket and clamping the valve to the rim and a yielding washer between the nut and rim.

No. 552,940.—Endless Tubular Fabric. Herbert N. Wayne, Newton, Mass., assignor of one third to Edwin R. Rand, same place.

In combination with a cushion for a vehicle tire an endless tubular fabric without cross-seam or splice, formed thereon from threads arranged in coils or helices, the component threads of the fabric extending through the structure a plural number of times in a series of helices or coils of comparatively steep pitch, relatively to the axis of the tubular structure, and in opposite directions, and an elastic binding substance amalgamated with the threads so positioned and related.

No. 553,003.—Process of Manufacturing Pneumatic Tires. Hermon W. Ladd, Boston, Mass.

The described method of forming three-ply rubber pneumatic tires, such method consisting in first uniting by cement a suitable sheet or strip of vulcanized rubber in normal condition to a and between two longitudinally and laterally-stretched layers of similar material, and then holding these sheets in contact until the cement hardens, afterward uniting the edges of the composite strips to form a tube and finally joining the ends of such tube to complete a hollow tire.

No. 553,212.—Art of Forming Tires or Other Tubes and Molds for Use Therein. Joseph G. Moomy, Erie, Pa., assignor to Mary H. Moomy, same place, and the Combination Roll and Rubber Company, Bloomfield, N. J.

The improvement in the art of forming tires or endless tubes of rubber fabric, which consists in forming a tube with open ends, inserting therein a tube with closed ends, joining the ends of the outer tube, inflating the tubes with gas or liquid under pressure in the inner tube, and vulcanizing the tubes thus formed under pressure.

No. 553,232.—Flexible-Tired Wheel. George Morston, Hartford, Ct., assignor to the Pope Manufacturing Company, same place and Portland, Me.

In a wheel rim for a flexible tire having a medial band or ridge, in combination with slotted clamping plates mounted at both sides of the rim, and rods mounted transversely in the rim and held from outward movement by the medial band or ridge and entering the slots in the clamping plates at both sides of the rim, the clamping plates being held from lateral outward movement and being adapted to be moved into and out of engagement with the tire.

No. 553,562.—Method of Mending Punctures in Pneumatic Tires. Judd W. Mix, Byron, Ill.

The method of closing a puncture in pneumatic tires, consisting in folding a section of sheet rubber with one fold, forcing it in its folded condition and with the edges in advance through the puncture in the tire until wholly within the tire, and while in its folded condition causing its folded edge to come in contact with the inner surface of the tire across the puncture and adhere thereto by reason of liquid adhesive having been previously applied, and finally allowing it to unfold and cover the puncture.

No. 553,566.—Pneumatic Tire. Frederick H. Perry, Montpelier, Vt.

A pneumatic tire formed of a sheet of suitable material, having one of its edges bifurcated, forming lips provided with teeth on their opposing surfaces, and having its opposite edge provided with teeth engaging the teeth on the lips, whereby the edges are interlocked to form an air tube, the inner of the lips being extended in the form of a flexible flap, adapted to be pressed against the inner side of the air tube by the pressure of the air within the tube and form an air-tight joint.

No. 553,698.—Wheel-Tire. Eli A. Thuston and George E. Gill, Columbus, Ohio.

A wheel having its rim made with its circumferential groove curved or rounded throughout its cross section, a flat elastic band in the groove, and a tire having a groove around its inner side curved or rounded throughout its cross section whereby when the tire is shrunk onto the elastic band the latter is compressed inward and outward toward and at its central line.

No. 553,791.—Valve for Pneumatic Tires. Sydney L. Sears, Norfolk, Va., assignor of one-half to Edward Cole and R. W. Shultice, same place.

The combination with an inner tube, and a cover of a pneumatic tire, of an air-valve comprising the valve-tube having securing means at its inner end for the inner tube, and a dished plate secured to the valve-tube and provided with securing means for fastening to the cover so as to hold the valve-tube and inner tube pressed in.

BOOTS AND SHOES.

No. 553,130.—Rubber Boot. Webster Norris, Melrose, assignor to the Boston Rubber Shoe Company, Boston and Malden, Mass.

IN a rubber boot loop the end portions extending through slits in the lining and being secured to the boot-leg between the lining and leg portion with the entire loop below the upper edge of and within the boot, the loop portion being bent forward and with the open side against the inner surface of the boot-leg.

No. 553,592.—Overshoe. John F. O'Brien, London, England.

IN a foothold the combination of a tongue having a portion folded inward toward the sole, and a portion folded outward toward the rear, the edges being attached to the top edges of the sides of the foothold, and a heel-strap formed or provided with a grip of unvarnished rubber.

DRUGGISTS' SUNDRIES.

No. 553,701.—Powder-Atomizer. Arthur C. Bancroft, Hartford, Conn.

A powder atomizer, consisting of a powder-receptacle provided with a discharge-nozzle and with a neck; an agitator-tube therein having a tapering, backwardly-turned nozzle, and having parallel flanges adapted to receive a packing between them, whereby the tube is adapted to fit tightly within the neck; and a bulb connected to the agitator-tube.

MISCELLANEOUS.

No. 553,787.—Pilot for Railway Cars. Ethera P. McKaig, Richmond Hill, N. Y.

The combination with a car-sill, of a pilot provided with a pneumatic cushion, spring-supported pilot-frame, and an inflexible perforated supply-pipe secured at its opposite ends to the frame, and extending through the pneumatic cushion, and means for supplying fluid under pressure to the supply-pipe.

PASSING COMMENTS ON THE RUBBER TRADE.

BY the middle of the present month the bulk of the orders for the spring mackintosh trade will have been received, unless an unusually prolonged winter should result in more than the ordinary number of supplementary orders. The weather for the past month has been a little more favorable for the sale of waterproof goods than was the case earlier in the season, but everybody knows how much more the trade is benefitted by wintry weather before than after the holidays. But the weather alone is not to be blamed for the unsatisfactory condition of a large element of the mackintosh trade. Of the various branches of the rubber business this seems to have become particularly cursed with cheap goods. There are manufacturers who assert that the market is flooded with goods which retail for less money than their own operatives receive for the labor on garments, to say nothing of cost of materials and general running expenses. The margin of profits has thus become so narrow in many lines of waterproof clothing that without a large volume of sales and close collections it is difficult to keep the business going.

Not only are the leaders in the production of cheap goods digging a pit for themselves, but they are unsettling the trade to a degree which interferes with the business of the manufacturers of articles of a better grade, who understand the necessity of charging what their products are worth, if they mean to escape bankruptcy. The expert sent from New York within the past month to appraise the stock of an insolvent firm in another city who had been reported to be making large sales, especially in the line of mackintoshes, reported as the cause of their disaster that they had been selling goods too low to permit any profits to be made. The result is the usual one in such cases—somebody else will have to make up the deficit between what these goods were sold for and what ought to have been charged. Two concerns in New York in the rubber-clothing trade came to grief during the month, and the manager of a sewing-machine company who had lost something through each failure, reported a little later that he was recovering from a third concern a number of machines which they were unable to pay for. At the same time he named some other companies using his machines who were working full capacity and finding a market for their goods.

All of which goes to show, as has been pointed out in these pages before, that in a country with such varied demands as in the United States, no statement of the waterproof clothing trade can be made which is universally applicable. Thus while the lack of seasonable weather seems to have checked sales in some sections, one year is very much like another on the Pacific coast, where the year is practically divided into two seasons—rainy and dry—and there the demand for waterproof garments is steady in the proper months for the trade.

The spring has developed few novelties in materials or styles. Periodically rumors are to be heard of new colors or shades, but when orders begin to be received in earnest, the old reliable blacks and blues are likely to prevail, and it has been in this year of 1896. It may be stated, however, that, taking the trade as a whole, the tendency is toward fewer capes. Three capes add to the weight and cost of a garment, with no compensating effects except in the way of affording novelty. But as soon as three capes come into extensive use the advantage of novelty disappears, when fashion turns again toward the throwing off of superfluous capes. Some makers have brought out ladies' styles showing roomier capes than hitherto, in order to accommodate the largest sized sleeves, and others have contented themselves with such small innovations as a new cut of collar, or something of the kind. There is no doubt that cravenette goods are losing rather than gaining popularity, although some firms are still actively pushing them.

For three months past there have been negotiations for the establishment in this country of a branch factory of an important foreign manufacturer of mackintoshes, but it is not strange in the present stagnation in this branch of the trade, that little progress should have been made in getting a start. There is reason to believe, by the way, that the trade in wateproof clothing has not been in a more healthy condition abroad than here. Especially from Germany are reports heard of the depressing effects upon the trade of the growing production of cheap and inferior garments.

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THE rubber-shoe trade doubtless will long remember the past winter as one especially poor in snow. The snow belt has been chiefly in the north section of New England, skirting from the New England States, across the lake region to Dakota, the snow being heaviest near the Canadian line. Last year the snow belt extended south to the Ohio and Tennessee river valleys. There has been practically no good rubber weather until within the past month, or until the usual annual period of closing the factories. Of course the snow which may fall between now and summer—for spring seems inclined to disappear from our list of seasons—will be too late to affect favorably the running of the factories, but every inch that falls will be welcomed alike by manufacturers, jobbers, and retailers, as tending to lessen the stocks to be carried over summer.

The "silly season" in this country now occurs in the latter part of winter, when the most ridiculous rumors get afloat respecting the shutting-down of the rubber-shoe factories, just as if it did not occur as regularly as the vernal equinox. The farther from the factories, the wiser the daily newspapers grow on the subject. One western editor gravely attributed the closing of the shoe factories—which he supposed to be permanent—to the action of the latest tariff law. Nearer home the annual closing of certain factories has been attributed in some quarters to supposed differences between their representatives in the directory of the United States Rubber Co. But, leaving aside the nonsense on the subject, it would seem in order for the factories to rest awhile after the heaviest year's production in their history, followed by a winter in which most people could go without rubbers.

The Boston Rubber Shoe Co. closed their two factories for two weeks from February 3, after having run them for a short while on reduced time, and on starting placed them on three-quarters time for an indefinite period. It is doubtful whether the requirements of the trade are such as to demand their running at all, but the management has been noted for a liberal disposition toward their employés. It is reported from Woonsocket that the idle operatives there have assurances that there is no intention of keeping the mill closed any longer than is absolutely necessary to work off the accumulated stock of manufactured goods. The factory at Millville has been run now and then to fill special orders for boots, and the Lawrence Felting Works have also taken care of all orders received. The engines at the Candee factory were started on February 17, after an idleness of a little more than two weeks, and running on half time since December. The bootmakers, however, were

not among those who went back to work. According to Superintendent Ames, "this has been a bad winter for the rubber trade. The demand has been largely for light goods, rather than for arctics, lumbermen's goods, and common boots. A year ago a considerable amount of the heavy goods was called for, but the weather has been such that they have not sold well this winter." President Hotchkiss took the trouble to publicly deny the report that the closing of the Candee factory grew out of dissatisfaction with the management of the United States Rubber Co., and that he contemplated withdrawing from the combination. The American Rubber Co. started up on February 12 on full time, and the Wales-Goodyear Co. and the National India Rubber Co. are also running full, the small strikes recently occurring there having come to an end. There is no known reason why all the factories should not be in operation by April 1, the beginning of the fiscal year of the big rubber combination.

The year has shown a change in respect to the character of rubbers demanded, but more especially in the decreased orders for boots, as indicated above. General Manager Saunders is only one of many who have been quoted to the effect that in the country districts, where lumbermen and farmers formerly wore rubber boots, they are now wearing more felt boots, over which is a rubber shoe. There are undoubted advantages in the felt boot, though it can hardly be recommended on esthetic grounds. As to the future, the tennis trade appears promising. Instead of only one company in the combination making tennis-shoes this year, two factories are turning them out in large volume, and in a wide variety of styles. Jobbers in New York report an active opening of the season in this line.

The first of next month will be the regular date for announcing prices and terms for rubber foot wear. Should the winter close with large stocks on hand the occasion might not prove favorable for any advance in prices. But the whole subject of prices for another year remains a secret. Not the least point to be decided, in issuing the new lists, will relate to the extra 5-per-cent. discount which the United States Rubber Co. have allowed, during two years past, on orders received and filled within a certain limit of time. No doubt buying was stimulated last summer by this inducement, and any retailers who find inconveniently large stocks in hand on April 1 will be cautious about buying during the coming summer, no matter what inducements may be offered.

The annual meeting of the United States Rubber Co., at which time the officers will be elected and some sort of financial statement given out, will occur on the third Tuesday in May, which will be, this year, the 19th.

* * *

FEBRUARY was perhaps a duller month in the mechanical-goods line than its immediate predecessors, and more so than the present month promises to be. The condition of the railroads does not improve so rapidly as the trade was only too glad to hope that it would, and this is always a factor in estimating the mechanical-goods situation. Some figures published in Chicago are of interest in this connection: The Westinghouse Air-Brake Co. showed in the thirty months prior to March 1, 1893—the date of the "safety-appliance" act of congress—136,388 sets of brakes sold, and in the thirty months subsequent to that act, it showed 91,724 sets of freight brakes, or 4544 per month in the first period and 3057 in the second, or approximately 50 per cent. more in the former period than in the latter. Which shows that not even the compulsory law has been sufficient to stimulate trade with the railroads.

In mechanical lines, only in tires is there no sign of dullness. It is settled among competent observers that 1896 is to break the record in the production of bicycles, and yet that no danger exists of overproduction. While new concerns are springing up constantly—and new rubber plants for tires, as well as new bicycle-works—it must be considered that the industry is yet limited by the impossibility of producing the tubing and other high-grade metal products needed in bicycle manufacture faster than a certain rate. So far this rate has been exceeded by the growth of the demand for bicycles, and, consequently, for tires. By the way, the leaders in the tire industry, considering the bicycle tire to have reached a point in development beyond which it can no longer proceed by leaps and bounds, are taxing their ingenuity in the adaptation of rubber tires to vehicles of different sorts. It cannot be doubted that in the near future the public will begin to appreciate that the saving in wear and tear of vehicles from the use of rubber tires will more than offset their cost, after which a pleasure vehicle without rubber will be as great a novelty as a rubberless bicycle now would be.

The general mechanical goods trade embraces some members who insist that the policy of the makers of the nation's laws of late has had the effect of seriously injuring business in all lines where other than the necessaries of life are involved. It is not claimed that a "war scare," for instance, would affect the actual popular demand for goods in any line, or that any possible tariff legislation would change the people's tastes. But the experience of these manufacturers has been that the movement of merchandise is promoted less by the insistent demands of consumers for their products than by the energetic efforts of jobbers to sell goods when they have full stocks on hand. The effect, therefore, of congressional action which threatens a public crisis, and renders jobbers cautious about accumulating large stocks, removes from these important factors in trade their chief incentive to activity, and hence, although the population and wealth of the country may be no less, the actual consumption of goods will show a falling-off.

* * *

THERE has been some price-cutting in sundries in quarters not to have been expected. The whole condition of the market for druggists' sundries is one to tempt well-informed members of the trade to assert that upon no other subject do people display so much ignorance as in regard to rubber. So long as three samples of tubing look alike to the unsophisticated, although offered respectively at 20, 30, and 40 cents, it is not strange that a good many people take the 20-cent goods. Salesmen with no knowledge of the goods they are selling, but who are determined to meet all competition in prices, without a thought of quality, come in for no small amount of abuse from the veterans in the trade who believe in doing business on a living basis.

BALATA FROM FRENCH GUIANA.

THE Franco-American Rubber Co., 206 Broadway, New York, have just received their first shipment of Balata from their concession in French Guiana. This concesson by the way embraces 500 000 acres of land in which the Balata tree is most abundant. The gathering is effected by convict labor, about 200 hands being distributed on each square mile. The lands are acquired by deed and the company are now pushing the work of development. The Balata already received is of a high grade and those interested should call at the above address and examine it.

F. E. SCOTFORD announces the early publication of a practical work on the rubber-stamp and allied trades, for which he has been gathering information for several years.

TRADE AND PERSONAL NOTES.

THE New Jersey Rubber Co. (Lambertville, N. J.) have begun the reconstruction of their plant, which was burned in January. A handsome three-story brick building is to replace the old frame structure which formerly sheltered the company's machinery. The contract for the new building calls for its completion during the present month. New and more modern machinery is to take the place of that damaged by the fire, with the design of making of this a model rubber-reclaiming factory. An increased working force is also talked of.

=The Wirt & Knox Manufacturing Co., extensive manufacturers of hose-reels at Independence, Mo., are reported as considering the advisability of removing their plant to Philadelphia, with a view to getting nearer the center of their trade.

=Mr. James Bennett Forsyth, general manager of the Boston Belting Co., and Mr. Arthur W. Clapp of the E. H. Clapp Rubber Co., are companions on a most delightful midwinter trip, up the Mediterranean. They are aboard the magnificent steamer *Fürst Bismarck* and expect to return to Boston early in April.

=The Globe Rubber Co. (Trenton, N. J.) have put as an extension on their main factory a three story building of brick which the increase in their business has made necessary.

=Mr. C. T. Knox of the Wirt & Knox Mfg. Co., the well-known manufacturers of all iron hose reels, has just returned from a most successful trip among his customers on the Atlantic seaboard. The business for this next year that this company do will be fully 30 per cent. larger than last year, which speaks well for the popularity of their reels.

=The Bedford Rubber Co., manufacturers of a fine grade of mackintoshes, have located on Bedford street, Boston. The business is in charge of Mr. A. O'Donahue, who was formerly with the Clifton Rubber Mfg. Co.

=Mr. W. N. Lockwood, treasurer of the Davidson Rubber Co., was recently married to Miss Mabel Gray of Boston and went as far as Aiken, South Carolina, on the wedding trip.

=Mr. Joseph Banigan, president of the United States Rubber Co., gave a dinner to the board of directors of that corporation at the Hotel Savoy, in New York, on Tuesday evening, February 18. The board was very fully represented, the gentlemen present being Robert D. Evans, Charles L. Johnson, Henry L. Hotchkiss, Charles R. Flint, Samuel P. Colt, George H. Hood, J. D. Vermeule, C. Van Vliet, Herman Burr, Mahlon C. Martin, James B. Ford, J. Howard Ford, W. L. Trenholm, James P. Langdon, Walter S. Ballou, John J. Banigan.

=The World Manufacturing Co. have been incorporated, with $15,000 capital, to manufacture rubber goods and railway supplies in New York city. The directors are M. C. C. Balley (Brooklyn), Edward E. Maxson (Jersey City), and E. C. Force (New York.)

=The Peoria Rubber and Manufacturing Co. (Peoria, Ill.) received their first consignment of rubber about the middle of February. The crude rubber is worked up at the Jonesboro (Ind.) factory, in which President Seiberling has an interest.

=The effects of the Commonwealth Rubber Co., at No. 54 Vesey street and No. 2 Astor House, New York, were sold by the sheriff on February 21 for about $2500.

=Edward W. Holt, dealer in rubber goods and bicycles at No. 71 Broadway, Brooklyn, N. Y., has made an assignment to Alfred A. Spadone, New York. The Gutta-Percha and Rubber Manufacturing Co. and Isabella B. Kincaid are named as preferred creditors, for $609 and $319, respectively.

=The Apsley Rubber Co. (Hudson, Mass.), have opened an office in Boston at 24 Kinston street, in the Shoe and Leather Exchange Building, where they carry a full line of samples of their mackintoshes.

=Mr. S. Willis Prescott, H. Elden Prescott, and Fred A. Prescott, formerly of Prescott Brothers, Cornhill, have united under the name of Prescott & Co., and opened a store at 61 Elm street, Boston, and carry their full line of mechanical rubber goods of every description, as well as wringers, sweepers, etc.

=King & Knight are a new firm who manufacture the Simplex hose couplings and menders, who carry a full line of lawn sprinklers, spray pipes, hose reels, etc., and who are located at 35 Wendell street, Boston. The senior member of the firm is Mr. Jos. W. King, formerly of the firm of King & Goddard.

=Mr. Louis O. Duclos, manager of the Kingston Rubber Co., (Boston), has opened an office at 114 Bedford street, where he carries a full line of ladies and gentlemen's mackintoshes.

=Mr. Jos. Woods of Cambridge, employed by the Boston Woven Hose & Rubber Co., while on the inside of the great fly wheel used in the electric lighting plant, was recently treated to an involuntary three minute ride, the wheel making 70 to 100 revolutions a minute. He had presence of mind enough to hold on tight and to the surprise of all was not injured in the least.

=The Boston Belting Co.'s New York branch-house will be removed on April 1 to Nos. 100-102 Reade street, where the ground floor, basement, and subbasement will be occupied. Not only will they occupy more room than at present, but it is intended to make their new place one of the handsomest rubber stores in the city.

=Leon Nussbaum, for some time past manager in New York for the Clifton Rubber Co. (Boston), has become connected with the house of J. Mandleburg & Co., Limited, in the same city. The Clifton company have selected as their manager Martin S. White, who is now to be found at their headquarters, No. 649 Broadway. Mr. White was previously in the employ of the Birnbaum Rubber Co., at various times in New York and on the Pacific coast.

=A local newspaper reports that many of the rubber operatives living at Colchester, Conn., have been engaged for the new rubber-shoe factory which George Watkinson & Co. are building at Philadelphia, and that they expect the mill to be running by May 1.

=The Long Island Rubber and Cycle Co. have been incorporated, to manufacture bicycles and India-rubber articles for use in connection with the same, with principal offices in New York city. The incorporators are A. L. Smith and A. S. Rogers, of Brooklyn, and John Larkin, of New York.

=The sheriff has sold out the machinery and stock of the Vendome Rubber Co. (No. 122 Centre street, New York), manufacturers of mackintoshes, for about $1200. Much of the stock had been taken previously on replevins.

=The new three story brick building of the New Jersey Rubber Company (Lambertville, N. J.) which was contracted for on February 4, was completed within thirty days from that date in spite of the bad weather. The works have just started up and will be in a position to supply the trade shortly after March 15. With new machinery and an increased capacity, the company is better equipped than ever to meet all competition as to quality and price.

=A new proofing factory is starting at Readville, Mass., under Messrs. Carstone and Pring.

=Frank Warren, Boston, has patented a corrugated rubber car step which at present is in use on many of the cars of the West End Street Railway. It is called the Warren Never Slip India Rubber Car Step.

=All the branch stores of J. Francis Hayward, Boston, Mass., have been incorporated and are now stock companies. Three of these have charters under Massachusetts laws, and one under those of Rhode Island. The officers in this company are Mr. George E. Hutchings, President Lowell Rubber Co.; Isaac Crocker, President Lawrence Rubber Co.; James W. Cross, President Fall River Rubber Co.; Thomas P. Himes, President Hope Rubber Co., Providence. Mr. J. Francis Hayward is treasurer of the four companies.

=The annual souvenir of the B. F. Goodrich Co. eclipses all previous efforts. It is a picture of Aurora and is simply a work of art that will not only adorn the most elegant office, but will find a place in many homes.

=Latta & Mulconroy, Philadelphia, will remove March 30 to more commodious quarters at 1217 Market street, increase in business demanding more room.

=The clothing department of the Enterprise Rubber Co., formerly at 111 Duane street, New York, has been removed to 168 Church street. This department is under the management of Mr. Charles H. Bishop, formerly of the Stirling Rubber Co. Mr. Bishop will carry a full line of rubber and mackintosh clothing, fully adapted to the requirements of the trade.

=Mr. James R. Chamberlain, of Rochester, well-known in the rubber trade, has been chosen brigade commander of the Monroe County Veterans' Brigade, and is the subject of a very pleasant sketch in a Rochester paper.

=The Standard Rubber Corporation, Brockton, reports the largest business in February of this year that they have ever had for any single month since they have been in business. They also write that the prospects for March trade are exceedingly flattering.

=The Medford Manufacturing Co., whose wool boots are so popular the country over, are being rushed to fill orders, all of which makes selling agent Chester J. Pike very happy.

=Inquiry often comes to THE INDIA RUBBER WORLD for the address of an expert in glass molds for fine rubber work, such as the manufacture of catheters. Mr. A. Hetchell, 33 Woodhill street, Boston, is perhaps the best equipped of anyone in the country for that work.

=It is reported that two representatives of the Congo Free State have been in Washington of late, trying to secure 50 men to go to Africa with them to open up rubber plantations there.

=The Columbia Rubber Co. (East Braintree, Mass). are starting up full on mackintoshes in response to spring orders.

=The Sheriff recently received an execution for $5655 against Walter S. Sinclair, doing business in rubber goods at 88 West Broadway, as Sinclair & Co., in favor of William A. Brown & Co. for balance due on two notes. When the Sheriff went to make a levy he was informed that Mr. Sinclair had given a chattel mortgage on the place to J. B. Barthleman for $2500.

=A visitor at the Hartford Rubber Works, Hartford, Conn., was recently paralyzed to see $100,000 of Pará rubber hanging in the drying room at one time. Such a sight, by the way, is an earnest of continued good quality in the Hartford tire.

=The calender rooms in the Millville plant of the Woonsocket Rubber Co., started on March 10, running stocks for special boot orders.

=At the recent cycle show held in Boston, the Reading Rubber Tire Co. exhibited their alligator tread tires.

=The Marron Mfg. Co. (Stoughton, Mass.) are running overtime to fill proofing orders.

=The L. A. W. are advertising to League clubs a handsome rubber mat with their patent initials in color on its surface.

=Elaterite, or the mineral rubber of Utah, is greatly interesting rubber manufacturers in the east just now. At the same time it is not rubber and its general utility is very doubtful.

=Mr. A. M. Stickney, president of the Wellman Sole-cutting Machine Co., Medford, Mass., is now in Europe, on a trip among the large rubber manufacturers there, beginning with the Russian-American Rubber Co., at St. Petersburg. The Wellman machines, by the way, are now in use in England, Scotland, Sweden, Germany, Austria and Russia, besides being generally used in all of the large rubber shoe factories in the United States.

=The World Mfg. Co. (New York) are already taking large orders for the "Superb Smalley," manufactured by the Plymouth Cycle Mfg. Co. Manager Randolph desires THE INDIA RUBBER WORLD to state that the World Mfg. Co. will appoint all agents and handle all business for the Smalley wheel in the New England states as well as in New Jersey and eastern New York.

=Mr. R. N. Towner has taken charge of the new branch of the New York Leather Belting Co., 216 Baronne street, New Orleans, Louisiana, which company are agents in that territory for the Manhattan Rubber Mfg. Co. and Eureka Fire Hose Co. Mr. Towner will divide his time between the New Orleans enterprise and the Memphis business of the Towner Co.

=The Metropolitan Rubber Co., New York, have removed their city sales room to No. 256 and 258 Church street, corner Franklin.

=Mr. Geo. J. Osborn has associated himself with the Hodgman Rubber Co. for the purpose of marketing their new single tube road tire and for this purpose has sent out a very neat announcement to the trade.

=A new jobbing house in rubber goods is that of S. T. Walsh & Co., St. Louis, Mo. Mr. Walsh is a well-known handler of rubber goods in the southwest, and without doubt will build up a good business.

=Manufacturers of Snowdrift gaiters are said to have been looking at the works of the Putnam Machine Co., Fitchburg, Mass., with the idea of their manufacturing their own rubber shoes.

=Mr. Edward Brooks has been elected treasurer of the Wellman Sole-cutting Machine Co., Medford, Mass., the office having been left vacant by the death of Mr. Henry F. Mandell.

REVIEW OF THE INDIA-RUBBER MARKET.

THE rubber market in Pará has been strong, the quotations for the past month having shown a steadily upward tendency. This has not been due so much to the character of the present demand in other markets as to the belief in Pará that the world's requirements for consumption will ere long lead to heavier buying by manufacturers. In the United States business during the most of the month has been light in the finer grades and moderately good in mediums. This is the season of dullness in rubber-shoe production, and especially so this year, on account of the weather conditions.

It is also near the time of stock-taking for the shoe-factories, which is another reason for their not accumulating supplies. The clothing-manufacturers have also been operating lightly, leaving only the mechanical-goods trade—and especially the tire-makers—really active. The net results of the month's trading in rubber is a slight advance in prices of Pará grades over the figures quoted in the last issue of this journal.

As for the statistical position of rubber, the receipts at Pará continue on a larger scale than in any previous year, though the receipts there during February were below the figures for February, 1894. This heavy production, considered alone, might be expected to depress the market. But, as has been pointed out in these pages from time to time, the consumption of rubber has increased more rapidly than its production, so that the world's stocks of surplus rubber grow less from year to year. Old coarse Pará rubber is not now quoted in the market, and old fine but rarely. The conditions here outlined are apt, for the most part, to continue indefinitely, While there is no scarcity of rubber in the forests, it is not probable that it will come forward at any time in such volume as to long depress prices. The rubber gatherers are not noted for energy, and will only bring the gum to market when the prices quoted are high enough to indicate a certain demand for it.

In addition to the imports of Pará rubber noted in detail this month is to be mentioned the steamer *Justin*, arrived at New York after the other figures were in type, with 700,000 pounds.

On February 10 the laying of the Amazon-river cable between Pará and Manáos was completed. Messages from Manáos were received in New York the next day, and on the 13th the announcement was made here that it was open for business. While of local importance to the trade in Manáos and Pará, the new cable line cannot be expected to have any general influence upon rubber markets. It is the hope of the people of Manáos that the benefits of the cable will tend to increase the importance of that point as a rubber center, and increase direct shipments thence to the United States and Europe.

Central American rubber of the better grades has been taken as fast as it arrived in the market, but in the lower grades there has been only a limited business.

Africans have been fairly active, receipts being in good volume. Fluctuations in price during the month have been slight.

The latest quotations in the New York market are:

Pará, fine, new t a...	74	@76	Sierra Leone.....	25	@42
Pará, fine, old.....	none here		Benguela.....	46	@47
Pará, coarse, new t a	45	@54	Congo Ball....	36	@40
Pará, coarse, old....	none here		Cameroon Ball.....	38	@39
Caucho(Peruvian)strip	44	@45	Flake, Ord and Lump..	24	@25
Caucho (Peruvian) ball	50	@51	Accra Flake.....	15	@18
Mangabeira, sheet....	40	@42	Liberian Flake...	26	@27
Esmeralda, sausage..	48	@49	Madr., primest pinky..	57	@59
Guayaquil, strip.....	35	@41	Madagascar, black. ...	40	@43
Nicaragua, scrap	45	@47	Borneo.....	26	@40
Nicaragua, sheet....	43	@44	Gutta-percha, fine grade		1.30
Thimbles.....	34	@35	Gutta-percha, medium..		1.00
Tongues.....	37	@38	Gutta-percha, hard white		85

Albert B. Beers, broker in crude India-rubber and commercial paper (No. 58 William street, New York), advises us as follows:

"The report of last month regarding the market for commercial paper practically covers the situation to about the present time. While the money market in general has been easier since the announcement of the government bond issue, banks are still buying very little paper and 6½ @ 8 per cent. are the nominal ruling rates for prime single and double names in the rubber line, but probably about ½ @ 1 per cent. lower for bills receivable of the large dry goods commission houses and other paper of that character which is well known."

PRICES FOR JANUARY (ISLAND RUBBER).

	1896. Fine.	Coarse.	1895. Fine.	Coarse	1894. Fine.	Coarse.
First.....	75	45	73	51	67	47
Highest.....	75	45	74	52	67	47
Lowest.....	71	43	71½	50	66	44½
Last	71	43	71½	50	66	46

PRICES FOR FEBRUARY (ISLAND RUBBER).

	1896. Fine.	Coarse.	1895. Fine.	Coarse.	1894. Fine	Coarse.
First.....	71	43	72	50.	66	46
Highest.....	74	45½	72	50	67	47
Lowest	70	43	70	47	65	46
Last	73½	45	71½	47½	66	47

* * *

The statistical position of Pará rubber in New York and elsewhere is as follows, the figures expressing tons of 1000 kilograms:

	Fine and Medium.	Coarse.	Totals.	Totals 1895.	Totals 1894.
Stock, January 31.....	209	41 =	250	566	929
Arrivals, February.....	557	288 =	845	896	1012
Aggregating.....	766	329 =	1095	1462	1941
Deliveries, February.....	564	271 =	835	730	842
Stock, February 29.....	202	58 =	260	732	1099

	1896.	1895.	1894.
Stock in England, February 29...	866	960	985
Deliveries in England, February.....	800	460	630
Pará receipts, February	2610	2520	2685
Stock in Pará, February 29.....	520	1010	1264
World's supply Feb. 29 (excluding Caucho).	4348	5003	4713
Pará receipts since July 1.....	15,900	15,145	15,330

IMPORTS FROM PARA.

THE receipts of India-rubber direct from Pará and Manáos at the port of New York since our last publication are reported in detail below, the figures referring to pounds:

February 14.—By the steamer *Origen*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	400,500	123,400	114,400	6,700=	645,000
Reimers & Meyer.....	182,800	69,300	109,000	6,600=	367,000
C. Ahrenfeldt & Son.....	21,500	. ..	33,700	67,800=	123,000
Lawrence Johnson & Co...	22,900	3,600	33,000	300=	59,800
Otto G. Mayer & Co.....	.....	2,900	31,800	.....=	34,700
Joseph Banigan.....	... .	3,600	20,000	.....=	23,600
Shipton Green.....	11,800	3,900	3,700	600=	20,000
Kunhardt & Co..... ...	9,600	3,800	.....	.....=	13,400
P. Lima.....	5,900	1,400	5,300	.....=	8,800
Sears & Co.....	7,400	.....	.....	....=	7,400
Totals.....	662,300	211,800	351,000	82,000=	1,307,100

February 26.—By the steamer *Dominic*, from Pará:

Lawrence Johnson & Co...	22,500	12,900	44,900	.....=	80,300
New York Commercial Co.	28,200	5,700	30,900	500=	65,300
Reimers & Meyer	10,700	1,800	25,800	.....=	38,300
Otto G. Mayer & Co.....	.....	.....	27,600	.....=	27,600
P. Lima.	5,700	.. .	4,400	....=	10,100
Totals.....	67,100	20,400	133,600	500=	221,600

	1896.	1895.
January Imports from Pará.....	2,718,300	2,869,500
February Imports.....	1,945,900	2,274,400

PARA IMPORTS VIA EUROPE.

February 10.—By the steamer *Aurania*, from Liverpool:

Otto G. Mayer & Co. (Fine)...	12,300

February 29.—By the steamer *Britannic*, from Liverpool:

For Boston (Fine).....	3,000

OTHER NEW YORK ARRIVALS.

BELOW will be found in detail the imports at New York during February, 1896, of India-rubber from Mexico, Central America, and South America, other than Pará grades; also, arrivals at New York of African and East Indian sorts:

CENTRALS.

	POUNDS.
FEB. 2.—By the *Umbria*=Liverpool:	
Reimers & Meyer	3,500
FEB. 2.—By the *Lisbonense*=Maranham:	
W. H. Crossman & Bro	200
FEB. 3.—By the *Finance*=Colon:	
Isaac Brandon & Bro	8,900
G. Amsinck & Co.	8,800
Hirzel, Feltman & Co	7,400
Roldan & Van Sickle	8,400
R. F. Cornwell	3,393
J. M. Ceballos & Co	3,144
Flint, Eddy & Co	2,344
D. A. De Lima & Co	1,912
A. Santos & Co	1,573
Geo. R. Cottrell & Co	1,012
Eggers & Heinlein	500
A. James & Co.	485
A. N. Rotholz	295
Dumarest & Co.	3,900
Total	52,078
FEB. 5.—By the *Regulus*=Cape Gracias, etc.:	
Eggers & Heinlein	16,000
K. Mandell & Co	1,500
Total	17,500
FEB. 5.—By the *Yumuri*=Mexico:	
Graham, Hinckley & Co	1,200
Hughes & Co.	1,000
Total	2,200
FEB. 7.—By the *Spero*=Greytown:	
G. Amsinck & Co	16,300
Munoz & Espriella	11,000
A. P. Strout	7,000
Andreas & Co	4,000
Jacob Balz	1,000
W. R. Grace & Co	500
G. R. Cottrell & Co	200
Total	40,000
FEB. 6.—By the *Kennett*=Vera Cruz:	
H. Marquardt & Co	700
FEB. 11.—By the *Adirondack*=Cartagena:	
D. A. de Lima & Co	3,500
Kunhardt & Co	1,000
Total	4,500
FEB. 11.—By the *Louisiana*=New Orleans:	
Francis H. Robinson	4,000
Albert T. Morse	3,000
Total	7,000
FEB. 12.—By the *Orizaba*=Mexico:	
E. Steiger & Co	1,000
E. Nelson Tibbals	600
Total	1,600
FEB. 14.—By the *Ciudad Condal*=Mexico:	
H. Marquardt & Co.	1,000
FEB. 13.—By the *Alliance*=Colon:	
A. Santos & Co	13,620
New York Commercial Co	8,700
Roldan & Van Sickle	6,840
Dumarest & Co	5,465
W. R. Grace & Co	4,399
Samper & Jimenez	3,526
Munoz & Espriella	3,635
A. P. Strout	1,892
Frame Alston & Co	1,420
Maitland, Phelps & Co	1,100
G. Amsinck & Co	1,338
L. Hagenaers & Co	1,329
Lanman & Kemp	671
A. M Capen's Sons	590
H. Marquardt & Co	555
George R. Cottrell & Co	501
J. Aparicio & Co	725
Fred. Probst & Co	325
E. Scheitlein & Co	340
Eggers & Heinlein	276
W. Loaiza & Co	201
Total	57,458
FEB. 18.—By the *Wordsworth*=Bahia:	
Reimers & Meyer	18,000
FEB. 18.—By the *El Rio*=New Orleans:	
Francis H. Robinson	10,000
Albert T. Morse	10,000
Total	20,000
FEB. 19.—By the *Alleghany*=Port Limon:	
Lanman & Kemp	300
Roldan & Van Sickle	200
Total	500
FEB. 21.—By the *El Paso*=New Orleans:	
Albert T. Morse	2,500
Francis H. Robinson	1,500
Total	4,000
FEB. 22.—By the *Advance*=Colon:	
New York Commercial Co	22,600
Isaac Brandon & Bros	10,170
Roldan & Van Sickle	7,784
G. Amsinck & Co	4,600
To Order	4,482
Flint, Eddy & Co	4,365
Dumarest & Co	2,982
Piza, Nephews & Co	2,434
Jacob Balz	1,250
Hirzel, Feltman & Co	789
Elmenhorst & Co	650
Ellinger Bros	520
Total	62,626
FEB. 23.—By the *Kilmore*=Vera Cruz:	
H. Marquardt & Co	2,000
Fred. Probst & Co	200
Total	2,200
FEB. 26.—By the *Alba*=Cartagena:	
D. A. DeLima & Co	3,500
Kunhardt & Co	2,000
For Bremen	500
Total	6,000
FEB. 25.—By the *Vigilancia*=Mexico:	
Hughes & Co	1,000
Lanman & Kemp	300
H. Marquardt & Co	200
Graham, Hinckley & Co	200
Total	1,700
FEB. 27.—By the *Seneca*=Tuxpan:	
J. W. Wilson & Co	1,000
Total Centrals for February	297,762
Total for January	339,937

AFRICANS.

	POUNDS.
FEB. 2.—By the *Scotia*=Hamburg:	
Reimers & Meyer	5,000
FEB. 6.—By the *Majestic*=Liverpool:	
Otto G. Mayer & Co	22,500
FEB. 10.—By the *Aurania*=Liverpool:	
Reimers & Meyer	28,000
George A. Alden & Co.	1,200
For Boston	6,000
Total	45,200
FEB. 12.—By the *Nomadic*=Liverpool:	
George A. Alden & Co	10,800
FEB. 14.—By the *Albano*=Hamburg:	
Otto G. Mayer & Co	1,000
FEB. 16.—By the *Etruria*=Liverpool:	
Reimers & Meyer	50,000
George A. Alden & Co	5,800
Total	55,800
FEB. 16.—By the *St. Louis*=Southampton:	
George A. Alden & Co	2,000
FEB. 16.—By the *Prussia*=Hamburg:	
George A. Alden & Co	33,500
Reimers & Meyer	27,700
Total	51,200
FEB. 19.—By the *Spain*=London:	
C. Osgood Lord	1,700
FEB. 22.—By the *Campania*=Liverpool:	
George A. Alden & Co	68,000
Reimers & Meyer	17,300
William A. Brown & Co	11,000
Total	96,300
FEB. 22.—By the *Paris*=Southampton:	
Reimers & Meyer	6,300
FEB. 23.—By the *James Brand*=Lisbon:	
Reimers & Meyer	12,800
FEB. 28.—By the *Britannic*=Liverpool:	
George A. Alden & Co.	5,700
Total Africans for February	316,300
Total for January	424,900

EAST INDIAN.

FEB. 1.—By the *Britannic*=Liverpool:	
George A. Alden & Co	5,600
FEB 11.—By the *America*=London:	
Reimers & Meyer	11,000
Robert Soltau & Co	7,000
Total	18,000
FEB. 16.—By the *St. Louis*=Southampton:	
Reimers & Meyer	1,600
FEB. 22.—By the *Campania*=Liverpool:	
George A. Alden & Co	8,000
FEB. 23.—By the *Christiania*=Havre:	
Otto G. Mayer & Co	7,700
FEB. 23.—By the *Richmond Hill*=London:	
George A. Alden & Co—(Pontianak)	47,600
Windmuller & Roelker—(Pontianak)	63,000
Total	110,600
FEB. 24.—By the *Europe*=London:	
Windmuller & Roelker—(Pontianak)	106,000
Windmuller & Roelker	8,100
Total	114,100
Total East Indian for February	265,600
Total for January	315,400

RECAPITULATION.

	POUNDS.
Pará—direct imports	1,945,900
Pará—via Europe	15,300
Centrals	297,762
Africans	316,300
East Indian	265,600
Total at New York for February	2,840,862
Total for February	2,823,537

BOSTON ARRIVALS.

	POUNDS.
FEB. 8.—By the *Georgian*=London:	
Reimers & Meyer—Africans	18,000
FEB. 8.—By the *Michigan*=Liverpool:	
Geo. A. Alden & Co.—Africans	24,700
Swingle & Falconer—Africans	9,000
FEB. 8.—By the *Kansas*=Liverpool:	
Reimers & Meyer.—Africans	12,000
FEB. 16.—By the *Ottoman*=Liverpool:	
Reimers & Meyer—Africans	21,200
Sgal & Co.—East Indian	1,500
FEB. 19.—By the *Sachem*=Liverpool:	
Geo. A. Alden & Co.—Africans	11,400
Sgal & Co.—Africans	200
FEB. 25.—By the *St. Ronans*=London:	
Geo. A. Alden & Co.—Jelotong	112,000
Total	210,000

NEW ORLEANS.

	POUNDS.	VALUE.
Nicaragua	48,616	$19,658

Clark & Zugalla probably advertise more than all the other printers in New York combined.
Clark & Zugalla show they have confidence in the goods they sell. Prices and samples are being continually distributed.
Clark & Zugalla by persistent hammering have built up a business in fourteen years that compares favorably with others much older.
Clark & Zugalla quote low prices for printing—they can afford to. Makes some of their competitors squirm: can't help it.
Clark & Zugalla the first (and only) printing house to combine the direct handling of papers with a magnificent printing plant. That's one reason they can quote such low prices. Low prices in this case, however, don't mean cheap work. No better printing done than they turn out.

33 to 43 Gold Street, New York.

896.

33,500
27,700
51,200
1,700
68,000
17,300
11,000
96,300
6,300
12,800
5,700
316,300
424,900
5,600
11,000
7,000
18,000
1,600
8,000
7,700
47,600
63,000
110,600
106,000
8,100
114,100
265,600
315,400

OUNDS.

945,900
15,300
297,762
316,300
265,600
840,862
823,537

OUNDS.

18,000
24,700
9,000
12,600
21,200
1,500
11,400
200
112,000
210,000

VALUE.

$19,658

older.
plant.
better
York.